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ABSTRACT

Based on the view that programs with a strong academic component may reduce the substantial educational disparities for American students from disadvantaged backgrounds or in chronically underperforming schools and school districts, this synthesis of research on academic achievement programs describes how such programs may help children and adolescents develop strengths and abilities in the areas of education and cognitive attainment, health and safety, social and emotional well-being, and young adult self-sufficiency. The report describes academic-oriented programs for youth that have a rigorous experimental evaluation or a careful quasi-experimental evaluation. Twelve programs are examined, all designed to improve academic achievement, with most participants considered to be at-risk of failing a grade or dropping out of school. Most programs had academic achievement as a component rather than the program's sole focus, were conducted after school, and were community-based. Experimental studies found that impact of academic achievement programs were mixed and varied considerably across programs. Programs focusing primarily on a particular outcome and including an academic component appeared to be more effective at improving that outcome than programs focused exclusively on academic achievement. Quasi-experimental evidence suggested that youth participating in programs longer and more intensively did better than those participating for a shorter time or less intensively, and that programs with a strong academic focus were more consistently effective at improving academic outcomes. The report identifies numerous questions for further research. The report concludes by asserting that although programs with at least one strong academic component can improve educational, health, social and emotional, and self-sufficiency outcomes among participants, the effects are not certain and sometimes no impact has been found. The report's two appendices describe the academic achievement programs and their evaluations, and delineate the

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non-academic programs offered by each program. (Contains 100 references.) (KB)

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Zakia Redd, M.P.P., Stephanie Cochran, B.B.A., Elizabeth Hair, Ph.D., and Kristin Moore, Ph.D.

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Child Trends

Washington, D.C.

January 2002

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EXECUTIVE SUMMARY

Beyond any doubt, academic achievement is important for the successful development of young people in contemporary American society. Research has shown that students who do well in school are better able to make the transition into adulthood and to achieve occupational and economic success.

Children who master basic reading, writing, and mathematics skills are less likely to fail in school and more likely to develop the higher-order thinking skills they need to graduate from high school and post-secondary school. Competency in these basic academic skills is also necessary for finding and keeping jobs that provide a steady income, benefits, and opportunities for advancement.

Unfortunately, U.S. schools vary greatly in quality. As a result, students' skills and knowledge, employment readiness, and readiness for higher education also vary widely. While educational outcomes have improved overall during the past several decades, approximately one-fifth to one-third of fourth-, eighth-, and twelfth-grade students still perform below basic levels on the National Assessment of Educational Progress (NAEP) reading, writing, and mathematics assessments. With substantial disparities in school quality and educational inputs, as well as in educational outcomes, the United States is far from reaching its educational goal of leaving no child behind.

Programs with a strong academic component may reduce these educational disparities, especially for students from disadvantaged backgrounds or those in chronically underperforming schools and school districts. This synthesis of research on academic achievement programs describes how such programs may help children and adolescents develop a broad array of strengths and abilities in the areas of education and cognitive attainment, health and safety, social and emotional well-being, and, as they move into adulthood, self-sufficiency.

Specifically, the synthesis addresses the following questions: What do academic-oriented programs look like? What impacts do they have? What resources do they provide to promote healthy development? What positive outcomes are achievable through academic-oriented programs? What methods of implementation characterize effective programs?

All of the programs in this synthesis have been evaluated, but not all of them with the same scientific rigor. Our main goal is to include program evaluations that use a rigorous experimental methodology to test for their impacts on youth outcomes. Few such impact studies exist, however, so this synthesis also includes careful quasi-experimental studies that provide insight into the practices of academic achievement programs.

Experimental evaluations of the following programs are included:

- Boys and Girls Clubs of America Educational Enhancement Program

- Children at Risk
- Howard Street Tutoring Program
- Quantum Opportunities Program
- Summer Training and Education Program
- Upward Bound

Quasi-experimental studies of the following programs are included:

- Foundations
- LA's BEST
- Sponsor-A-Scholar
- Texas Parks and Recreation Department After-School Programs
- Fifth Dimension
- University Student Athletes Tutoring Program[1]

The quasi-experimental analyses are included only in Part III, which explores best bets for program elements. For instance, a few studies of the Boys and Girls Clubs and Children at Risk programs used both experimental and quasi-experimental methods; in such cases, outcomes for students in the program are examined in relation to outcomes for control *and* comparison groups.

Part I. Characteristics of Academic Achievement Programs

All of the programs reviewed here are designed to improve academic achievement. Most of them target children and adolescents who are considered to be at risk of failing a grade or dropping out of school because of, such as low levels of parental education, low socioeconomic status, minority race or ethnic background, living in a high poverty neighborhood, and other factors.

Academic achievement is often a *component* rather than the sole focus of a program. Thus the emphasis on academic achievement varies, as do the types of academic activities. Such activities include homework completion and assistance, supplemental academic or remediation classes, academic games and activities, educational computer games and activities, educational board games, and one-on-one or group tutoring. Other components, which may support both academic and other program goals, include recreational and arts and crafts activities, social and human services, cultural enrichment activities and field trips, recreational computer games, nutrition and health promotion lessons or activities, community service, employment, life and social skills

[1] This program, which uses university student athletes with below-basic reading skills (compared to other college students) as volunteer tutors for disadvantaged youth with reading problems in an effort to improve reading skills in both groups, is referred to here as the University Student Athletes Tutoring program. The formal name of the program is not reported in the evaluation.

training, mentoring, counseling, career preparation, parent workshops, and career planning.

Most of the programs are after-school and are community-based rather than school-based. They vary in how often and for how long they provide services, as well as in what children and adolescents they encourage to participate. Some programs provide services during the summer or for one semester, for example, while others offer services—and encourage young people to participate in them—for up to four years. Although many of the programs operate after school every weekday, some are open only a couple of days per week. Some programs are structured informally, offering drop-in tutoring or academic remediation services at parents' or students' request. Other programs strongly encourage or expect all students to attend regularly and to participate in all program activities.

Part II. Outcomes Positively Affected by Academic Achievement Programs[2]

Experimental studies found that impacts of academic achievement programs on child and youth development were generally mixed and varied considerably across programs.

Educational Achievement and Cognitive Attainment

Evidence shows that academic achievement programs *can* improve educational outcomes for young people who participate in them, although there is great variability across programs and outcomes.

The one study that measured grade repetition found that children in academic-oriented programs repeated a grade significantly less often than children in control groups. One of two studies that measured test scores found positive impacts, while the other showed mixed effectiveness at improving scores. One of five studies that measured grades found that participation in academic programs raised students' grades significantly higher than they would have been in absence of the program. Two of four studies that measured program impacts on high school graduation or college attendance showed some positive results. One of these programs improved high school graduation and college attendance for participants overall, while another improved them for certain subgroups, including low-income whites and Latinos.

Overall, academic-oriented programs were more effective at improving academic-related outcomes such as reading, writing, and mathematics skills, grade progression, attitudes about school, high school credits earned, receipt of honors or awards, and engagement with school than at improving other developmental outcomes. Experimental evidence is limited, however, because only a few programs measured each outcome.

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[2] Only findings from experimental studies are reported here as "impacts."

Health and Safety

Studies indicate that academic-oriented programs which also aimed to improve health and safety were only sometimes effective at meeting this goal.

One program decreased reported drug use among its participants. Two programs increased knowledge of contraceptives and responsible sexual practices and had limited success in decreasing students' involvement in risky sexual behavior. One of these programs increased contraceptive use for one of two participant groups, but did not decrease teen pregnancy for either group. Participants in the other program did not report having fewer children than students in the control group in an initial follow-up, but had significantly fewer children one year after the end of the program. A third program had no impact on childbearing.

Social and Emotional Well-Being

Academic achievement programs showed some evidence of effectiveness at improving social and emotional well-being, although programs that specifically target this developmental outcome are more effective.

One program found no differences in parents' and teachers' behavior ratings of youths in educational enhancement programs and those in control and comparison groups. Two programs had positive impacts on behavior related to delinquency (that is, selling drugs, involvement with police, associating with delinquent peers), while one had no impact on such behaviors (specifically, gang membership, contact with the juvenile justice system agencies, and behavioral incidents). One program increased youths' involvement in positive social activities, while another improved students' attitudes and behaviors, as measured by higher rates of volunteering and positive attitudes regarding the future, school, and helping the elderly. More research is necessary to understand the impact that participation in academic-oriented programs may have on social and emotional outcomes.

Self-Sufficiency

Academic achievement programs showed mixed effectiveness at improving self-sufficiency in young adulthood.

Only two academic programs reviewed here measured self-sufficiency, and both of them had improving self-sufficiency as a goal. One program improved involvement in productive activities such as employment, school, and community service after the program ended. The other had no impact on employment or wages earned from employment, and no impact on welfare receipt. Again, more research is needed to understand the impact that participation in academic-oriented programs may have on self-sufficiency in early adulthood.

Summary of Program Findings

In sum, the academic achievement programs included in this synthesis show some promising findings. Some have improved academic achievement and other educational outcomes. Some have improved social and emotional, health, and self-sufficiency outcomes as well. However, programs that focus primarily on one of these three outcomes and include an academic component appear to be more effective at improving them than are programs focused exclusively on academic achievement. More research is necessary to state definitively whether and how academic-oriented programs affect educational, social and emotional, health and safety, and self-sufficiency outcomes.

Part III. Program and Participant Characteristics Associated with Positive Outcomes

Quasi-experimental evidence from several studies suggests that young people who participate in programs longer and more intensively do better than those who participate for a shorter time or less intensively. Findings of one such study suggest that the development of close tutoring and mentoring relationships improves academic outcomes. Quasi-experimental studies also suggest that programs with a strong academic focus are more consistently effective at improving academic achievement outcomes.

Part IV. Unanswered Questions

People who want to implement academic-oriented programs need research that evaluates and systematically compares programs. Such studies should examine the impacts of various program components on subgroups of students. The following questions have not been—but need to be—adequately answered:

- What program components work?
- Are some activities more effective than others?
- Are academic tutoring, homework assistance, and/or classroom-like lessons more effective than a broader approach?
- Is one academic approach more effective than others?
- Are academic programs effective as a stand-alone intervention?
- For which outcomes are academic-oriented programs most effective?
- Are programs that match their activities or lessons to lessons learned in school more effective than programs that try to seem less like school?
- Do programs that use different teaching methods or approaches help students who may have difficulty learning in the regular school environment?
- Does the effectiveness of academic-oriented programs vary by student group or initial degree of risk?
- How can quality of tutoring or programming be assessed?
- Can interested parties agree upon standards for assessing best practices and characteristics of effective teaching methods and program activities?

- How much training and ongoing support for tutors, volunteers, and program staff is needed to achieve good outcomes?
- What is the optimal frequency and duration of participation?
- What degree and type of interaction between regular school teachers and program activity leaders helps improve student outcomes?
- What do high-quality academic achievement programs cost? How does their cost compare with the costs of other program interventions?

This synthesis suggests that programs with at least one strong academic component can improve educational, health, social and emotional, and self-sufficiency outcomes among participants. However, impacts are not certain, and sometimes no impacts have been found. Clearly, much remains to be learned.

INTRODUCTION

Academic achievement is essential for young people's successful development. Children and adolescents who do well in school are more likely to make a successful transition to adulthood. Short-term outcomes promoted by successful academic performance include attainment of a high school diploma, enhanced social and emotional well-being, and avoidance of unhealthful or unsafe behavior. Long-term outcomes include attendance at post-secondary schools, the attainment of a college or higher degree, and improved social and economic status in adulthood (Murnane, 1994).

Unfortunately, schools and school districts in the United States vary greatly in quality. As a result, students exhibit a wide range of skills and knowledge, employment readiness, and readiness for higher education and training. While educational outcomes have gradually improved over the past few decades (National Center for Education Statistics, 2000) systemic academic problems persist. Therefore, out of school academic achievement programs may be essential to improving students' academic achievement.

The Importance of Academic Achievement in Youth Development

Research on youth development poses a series of specific practical questions: What do children and adolescents need for healthy development? How can adults meet those needs? What outcomes can society realistically expect to achieve? Academic-oriented programs are one of the resources adults can provide to meet the developmental needs of young people (Figure 1).

Academic achievement programs are designed specifically to meet young people's need for "academic, information, and technological knowledge." Yet because that knowledge is provided by caring adults (with whom young people can establish positive relationships), academic programs may meet not only informational needs, but other basic needs as well. By providing resources to meet students' needs, academic achievement programs may improve educational achievement and cognitive attainment, social and emotional well-being, and health and safety, helping young people to become self-sufficient adults. Table 1 shows how academic achievement programs provide resources to meet children's and adolescents' developmental needs.

Figure 1. Model of Youth Development

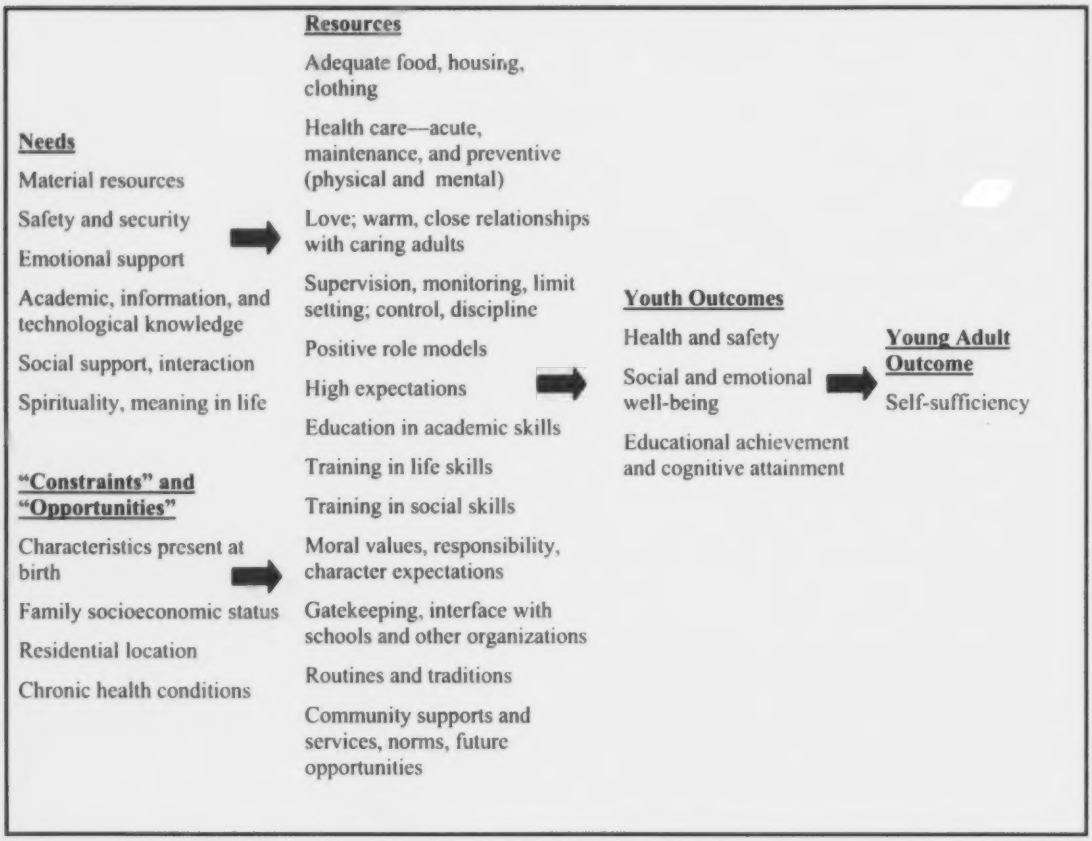

Table 1. Developmental Resources Provided by Academic Achievement Programs

Resource	Program Activity
Adequate food, housing, clothing	• Snack or meal provided; social service referrals for families
Health care—acute, maintenance, and preventive (physical and mental)	• Identification of risky behaviors, physical or mental health problems; health service referrals
Love; warm, close relationships with caring adults	• Trust, open communication, warm relationships between some tutors, program staff or volunteers, and program participants
Supervision, monitoring, limit setting; control, discipline	• Programs designed to provide safe spaces for learning, activities with strong supervision and limits in place
Positive role models	• An outgrowth of the tutoring relationship • Program participants see examples of careers and work ethic • Recruiting older (55+) mentors and college student volunteers • Parenting workshops
High expectations	• Program goals are high; include improving academic test scores, improving social and emotional and health attitudes and behaviors among participants.
Education in academic skills	• Tutoring • Education enrichment activities • Academic workshops • College preparation • Homework and study skills
Training in life skills	• Life skills curriculum • Workshops on practical issues such as pregnancy education
Training in social skills	• Classroom discussions on the development of competent social skills
Moral values, responsibility, character expectations	• Youth-centered approach may encourage good character • Community service requirement
Gatekeeping, interface with schools and other organizations	• Program staff write recommendations • Program staff mediate with school officials or juvenile detention officers • Program staff collaborate with schools, universities, or other community organizations
Routines and traditions	• Children encouraged to complete homework regularly and to practice good study skills and habits • Children encouraged to attend program regularly, follow schedule, and participate in performances, program pledges, songs, etc.
Community supports and services, norms, future opportunities	• Summer jobs provided • Social service referrals • Community role models participate in programs providing social capital, gateway to community • College preparation activities • Scholarships; stipends

Knowledge of Basic Skills

Students who master basic reading, writing, and mathematics skills are less likely to fail in school and more likely to develop the higher-order thinking skills they need to graduate from high school and post-secondary school. Mastery of basic academic skills is also necessary for finding and maintaining jobs that provide a steady income, enabling young people to live self-sufficiently as adults. Indeed, research confirms that performance on adult literacy tests helps explain differences in wages (Blau and Kahn, 2000) and that amount of schooling predicts occupational status (Sewell, Hauser, and Wolf, 1980).

Competency in all academic subjects is dependent upon reading skills. Children who read poorly will not be able to understand textbooks or word problems. They will experience difficulty writing reports for classes and, later, for work. Illiterate adults are less able to help their children with schoolwork and may pass along their academic deficiencies to their children. Indeed, family background, including parents' educational and cognitive attainment, is strongly correlated with children's basic verbal and mathematical skills (Haveman and Wolfe, 1995; Murnane, 1994; Moore, Glei, Driscoll, Zaslow, and Redd, forthcoming).

Reading competency also affects fundamental life skills. Basic decision-making skills are limited by deficits in reading, and illiterate adults find it difficult to function in society (Kirsch, Jungeblut, Jenkins, and Kolstad, 1993). Getting a job, for example, is likely to be very difficult for anyone who cannot fill out an application because of limited reading or writing skills.

Young people need to be able to communicate about mathematics and to connect mathematical ideas with ideas from other disciplines (National Assessment Governing Board, 1996). For instance, a mastery of basic mathematics is needed for household budgeting and for everyday tasks such as depositing money into a bank account, filling out a job application, and estimating total costs when shopping (Kirsch, Jungeblut, Jenkins, and Kolstad, 1993). Nearly 90 percent of new jobs require math proficiency above the high school level (Riley, 1998). One study found math skills taught through junior-high to be positively associated with wages at age 24 (Murnane, Wilett, and Levy, 1995). This same study, using longitudinal data and controlling for family background and educational attainment, found that the effect of high school students' basic cognitive skills on wage differentials later in life has increased steadily since 1976 (Murnane, Wilett, and Levy, 1995).

While competency in higher-order thinking may improve young people's chances of getting and keeping a job with potential for advancement, they need to develop basic cognitive skills simply to get and keep a job (Murnane, 1994). Furthermore, as the United States has become less dependent upon manual labor, many of the new low-skilled positions are in the service and telecommunications industries (Committee for Economic Development, 1998). A high school diploma or the equivalent is a minimum requirement for many such jobs. Because young people who lack basic academic and

cognitive skills have trouble getting and keeping a job, they may find it difficult to become economically self-sufficient as adults. Studies have found that low education and skill levels are associated with poverty and the receipt of government assistance (Boisjoly, Harris, and Duncan, 1998; Gottschalk, McLanahan, and Sandefur, 1994; Humboldt Literacy Project, Moore, Glei, Driscoll, Zaslow, and Redd, forthcoming).

In recent years, the United States has moved toward competency tests for primary and secondary students as part of standards-based educational reform. The *No Child Left Behind Act*, which reauthorizes the Elementary and Secondary Education Act was passed with bipartisan support of both the House of Representatives and the Senate and was signed into law by President Bush on January 8, 2002; this bill requires students in grades 3 through 8 to be tested annually (National Education Association, 2001; U.S. Department of Education, 2002). Some states require students to pass tests showing they have mastered basic academic skills, including reading, writing and mathematics, before they can be promoted to the next grade or graduated from high school (National Governors Association, 1998). Success in these examinations as well as in other areas, is dependent upon competency in basic cognitive and academic skills.

Failure in School

The perennial question of whether to require failing students to repeat a grade or to give them social promotions (promotion based on age rather than performance) has become a hot political issue in recent years. It is fair to say that research on the question presents a mixed picture. Repeating at least one grade in elementary or secondary school is generally a sign that a student is experiencing academic difficulty, yet repeating a grade, even in elementary school, is a predictor of dropping out of high school (Dryfoos, 1990; Roderick, 1994). Being overage for grade is a predictor of teenage pregnancy (Moore, Manlove, Glei, and Morrison, 1998). Though findings are conflicting, most studies show that being held back negatively affects subsequent academic performance (Karweit, 1999; Roderick, 1995; Viadero, 2000; Walters and Borgers, 1995).

Little research has been done on the social and emotional effects of repeating a grade, but some observers believe, and evidence suggests, that failing a grade may damage children's social adjustment, academic self-concept, and overall self-esteem (Thomas et al., 1992; Foster, 1993). Students who were held back in kindergarten and first grade, for example, showed less ability to function socially than students who were promoted (Thomas et al., 1992). Others believe that social promotion prevents children from taking the additional time they may need to grow academically and socially (Pierson and Connell, 1992). One study finds that students who were held back in sixth or seventh grade showed less rebellious behavior and greater attachment to school in later adolescence than comparable students who had received social promotions (Gottfredson, Fink, and Graham, 1994). Teachers' ratings of adjustment were not statistically different for predominantly African American fourth graders who had been held back and those who had not (Reynolds, 1992).

The question of what to do with failing students has taken on increased importance as social promotions are being roundly criticized by some politicians, education reform is focusing increasingly on standard setting and accountability, and more states are requiring students to pass competency tests. Negative outcomes have resulted from both social promotion and grade repetition. The more important question is how best to promote academic success so that neither practice is used. The fundamental fact remains that a child is not usually held back a grade in school or socially promoted unless he or she has failed academically. Preventing this high rate of school failure is important to the healthy development of children and adolescents and to their self-sufficiency as young adults.

Educational Attainment

The substantial economic returns of education, particular post-secondary education, are well documented (Kane and Rouse, 1995; Miller, Mulvey, and Martin, 1995; Murnane, 1994). Although its value has decreased in the last few decades, a high school diploma or its equivalent still improves the economic prospects of students who have one (Entwisle,1990). Human capital investments yield economic returns through employment and the resulting income, in turn, leads to other positive outcomes.

Educational attainment is associated with higher rates of employment and higher income. Most jobs require at least a high school diploma or general equivalency diploma (GED) for full-time workers, and many require a college or special degree. Employment status among adults age 18 to 34 varies with educational level. Unemployment among people with less than a high school diploma is 12 percent. That rate is nearly twice the unemployment rate among high school graduates (6 percent) and eight times the rate among college graduates (1.5 percent) (U.S. Department of Education, 2000). Current Population Survey data from March 1997 show that women with a college degree earn almost twice as much as women with a high school diploma or GED and that men with at least a bachelor's degree earn 1.5 times as much as men with a high school diploma or GED (U.S. Department of Education, 2000). Research has also shown completion of some college, even one semester at a community college, is associated with higher average lifetime earnings (Kane and Rouse, 1995). The positive economic returns of education may increase over time as entry-level positions for low-skilled or low-educated workers in the service and other sectors are less likely to pay middle-income wages (Entwisle, 1990).

People with at least a high school diploma are much less likely than those without a diploma or GED to need welfare or other public assistance, and when they do, they are likely to need it for less time (Boisjoly, Harris, and Duncan, 1998). This finding is particularly salient since the passage in 1996 of the welfare reform bill, the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA), which replaced the entitlement program Aid to Families with Dependent Children (AFDC) with Temporary Assistance for Needy Families (TANF), a welfare payment transfer program with strict time limits and work requirements.

The higher a person's level of education, the lower the likelihood that he or she will become involved in crime (Freeman, 1996). Freeman argues that the collapse of the labor market for men with little education and few skills provides an economic incentive to commit crimes and may have influenced the greater involvement in criminal activity exhibited by this group (1996).

The higher occupational attainment and socioeconomic status attributable in part to higher education are themselves associated with positive outcomes. Good health, for example, is linked to higher education through employment. Good jobs offer more extensive health benefits (including access to social and psychological resources), better working conditions, higher pay, and therefore a more healthful lifestyle (Ross and Wu, 1995). More highly educated people also report being happier and feeling more fulfilled in life than less highly educated people (Ross and Wu, 1995). Education is also related to family life. Women with less education at the time of their marriage are more likely to divorce than women with more education (Bumpass, Castro Martin, and Sweet, 1991).

While genetic factors influence academic achievement and the attainment of educational credentials, it is important to recognize that individual motivation, learned information and skills, and environmental conditions are also important factors and that they interact with genetic characteristics (Dickens and Flynn, 2001; Maccoby, 2002). In the last few decades, there has been an exaggeration of the degree to which genes determine an organism's capacities, including IQ (Lewontin, 2000). The number of years a person attends school and the amount he or she learns, for example, are not only predicted by IQ, but also predictors of IQ and of successful outcomes in life (Neisser et al. 1996). Research confirms that mean performance on intelligence tests has increased more than 15 points over the past 50 years, providing evidence that external conditions may exert a powerful effect on IQ (Dickens and Flynn, 2001; Neisser et al., 1996). Nevertheless, recent research shows that nurture and nature interact throughout the course of development to influence developmental outcomes (Bjorklund, 1995; Miller, 1993; Maccoby, 2002; National Research Council, 2000).

In sum, educational attainment is strongly associated with higher occupational attainment and income and with less dependency on welfare. Not only does education confer economic benefits, the attainment of academic credentials, especially college degrees, is associated with improved health and social and emotional status throughout life. Therefore, it is important for young people to understand the importance of completing high school and the need for training in fields that will enable them to achieve and maintain a self-sufficient lifestyle.

Students Who Need Help with Schoolwork

Recent Trends in Academic Performance

Since the release of *A Nation at Risk,* a report by the National Commission on Excellence in Education (1983) documenting the poor performance of American students, strides have been made to improve academic achievement. Indeed, academic performance of students in the U.S. has gradually improved since 1983 (Forgione, 1999), However, disparities persist among people in different income and racial or ethnic groups on standardized test scores, high school graduation rates, and college enrollment rates (National Center for Education Statistics, 2001). In addition, data show that although the overall gap in reading performance between white students and black students declined between 1971 and the late 1980s, it increased in the early 1990s and has remained relatively stable over the rest of the decade (National Center for Education Statistics, 2001). A recent report of the National Education Goals Panel shows that the reading scores of the best-performing students on the NAEP have gotten better, while the scores of the worst-performing students have gotten worse (Barton, 2001). Although the overall trend in academic achievement over the past two decades has been slightly positive, data show that much still needs to be done to meet the broad educational goal of having
no child left behind.

Recent Trends in Educational Attainment

Overall educational attainment, and particularly attainment among black students, has increased rapidly in the past few decades. In 1999, almost 90 percent of all 25- to 29-year-olds had completed high school, an increase of more than 10 percent over 1971. The rate among white students was 93 percent in1999, up from about 82 percent in 1971. The rate of black students graduating from high school increased substantially, from roughly 60 percent in 1971 to almost 90 percent currently. Almost 62 percent of Hispanic students received high school diplomas in 1999 , compared to 48.3 percent in 1971. Although information on educational trends is not available for all ethnic groups, 1990 Census data showed that about 78 percent of Asian/ Pacific Islanders and 66 percent of American Indian or Alaskan Natives age 25 and over had received high school diplomas (National Center for Education Statistics, 2001).

These statistics show that the black-white gap in educational attainment has diminished substantially since 1971, yet there remains a large gap between the educational attainment of Hispanics—a rapidly growing segment of the nation's population—and whites and other racial and ethnic groups.

How Academic Achievement Programs May Meet Developmental Needs

In the first section of this introduction, evidence is offered on why it is important for children and youth to achieve academically and to attain educational credentials. In the second section, we discussed gaps among American children in educational

achievement as measured by NAEP mathematics and reading scores as well as in educational attainment. We now turn to the focus of this synthesis, the role of academic-oriented nonschool programs in improving educational and other outcomes for young people.

Many and varied policies and reform proposals have cropped up to deal with the problem of public schools that fail to teach students basic skills. These include mandatory teacher testing, school vouchers, more early literacy programs, closing or penalizing failing schools, and providing extra funds for failing schools and schools in very poor districts to increase teacher salaries, offering more professional development, decrease class size, etc. Debates over which programs and policies are most effective are ongoing.

Many of the nonschool programs reviewed in this synthesis offer assistance and academic support needed by students who are at risk of educational failure. In addition, most of these programs are targeted toward the "worst-performing students." The additional help offered by these programs may serve to help close these gaps. While acknowledging the importance of parents and community in preparing children for school and fostering their success in school, this synthesis focuses on what nonschool academic-oriented programs and services can do to enhance educational achievement.

Services include tutoring, assistance with homework, group remediation classes, and a variety of educational enrichment activities. Many of academic achievement programs are staffed by volunteer college students, senior citizens, and other caring adults. Nonparental adults are able to provide can support to students and encourage students (Hendry, Roberts, Glendinning, and Coleman, 1992) and who may serve as role models for them. Because these programs provide individualized attention, trained staff members may be able to detect learning disabilities in children. In addition, volunteers and program staff are better able to assist children with homework than parents who work during nonschool hours or who have academic deficiencies or language barriers of their own.

Most of the programs in this synthesis are after-school programs, a concept that received bipartisan support throughout the 1990s. In 1994, the 21st Century Community Learning Centers, an initiative of the Clinton Administration, were authorized as a part of the Elementary and Secondary Education Act under Title 10, Part I.[3] The creation and increased funding of this program show that policymakers see them as a way to promote educational success. Because of the gap in educational outcomes among students of different racial and ethnic groups and income levels, many programs—and all of the programs in this synthesis—are targeted toward disadvantaged children, who are at risk of failing academically.

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[3] The 21st Century Community Learning Centers are part of a national after-school program that uses public schools as community safe havens that provide educational, recreational, cultural, and nutritional activities for program participants. The program is currently undergoing evaluation by the independent research organization Mathematica Policy Research.

How successful are these programs at improving educational and cognitive outcomes? This synthesis of program evaluations is designed to answer that question. This synthesis is organized into four parts. First, we describe the approaches taken by programs that focus on improving academic achievement. Second, drawing on studies that took a rigorous experimental approach to evaluation, it reports positive, negative, and mixed impacts of academic-based programs on participants. Third, it highlights the program elements that contribute to effective academic-based tutoring or other program activities. Finally, it presents questions about the structure and content of academic achievement programs that need to be answered through further research.

Study Design

All of the programs in this synthesis have been evaluated, but not all of them with the same scientific rigor. Those subjected to experimental scrutiny are described in terms of their impacts on various developmental outcomes. Our main goal is to present program evaluations that use a rigorous experimental methodology to test for the impact of program participation on youth outcomes. Few such impact studies exist, however, so this synthesis also includes careful quasi-experimental studies that provide insight into the practices of academic achievement programs. Therefore, we also include other careful studies that provide insight into practices of academic-based programs, and differentiate these from impact studies that address impacts on youth outcomes.[4]

Experimental evaluations were conducted on the following programs:

- The Boys and Girls Clubs of America Educational Enhancement Program (BGC)
- Children at Risk (CAR)
- Howard Street Tutoring Program (HST)
- Quantum Opportunities Program (QOP)
- Summer Training and Education Program (STEP)
- Upward Bound (UB)

Quasi-experimental studies were conducted on the following programs:

- Fifth Dimension (5D)
- Foundations (FND)
- LA's BEST (LAB)
- Sponsor-A-Scholar (SAS)
- Texas Parks and Recreation Department After-School Programs (TXPR)

[4] Throughout this synthesis we will denote applicable programs abbreviated program names. Refer to Program References (at the end of the document) for complete references.

- University Student Athlete Tutoring (USA)[5]

These programs and evaluations are described in detail in Appendix A.

All of the studies include at least one comparison group, so outcomes for students who participated in a program can be interpreted in light of outcomes for students who did not participate. The studies collected baseline information on these students, as well as data just before testing, and they conducted at least one follow-up evaluation.

The largest group of studies included in this synthesis are experimental; that is, they assigned students at random to program or control groups, with those in the control group receiving no or only limited program services. A couple of these studies used stratified random assignment, in which all children and parents in similar neighborhoods attended the after-school program in their school or neighborhood, but only children in certain sites received services. In the study of BGC's Educational Enhancement Program, for example, academic activities were assigned to children in 5 of 10 after-school program sites.[6] BGC and CAR used both experimental and quasi-experimental methods; for these studies, outcomes for students in the program are examined in relation to outcomes for both control and comparison groups.

The six programs evaluated experimentally are assigned to one of three categories on the basis of study findings—"works," "doesn't work," or "mixed reviews." The six programs evaluated in quasi-experimental studies are considered to be a source of "best bets" for program practices. That is, they seem to work, but the method of evaluating them cannot produce clear evidence of success. Also included in the "best bets" column of the "what works" tables are findings from multivariate, longitudinal studies.

In the quasi-experimental studies, study participants or study sites are matched based on similar background or neighborhood characteristics; they are not assigned to treatment or comparison group status. Because program participants self-selected into these programs, it is important to take any baseline differences (in motivation, test scores, etc.) between the program and comparison groups into consideration when interpreting. However, some studies suggest that the effects of unmeasured and unobserved variables profoundly bias results in quasi-experimental studies (Agodini and Dynarski, 2001).

The more rigorous quasi-experimental studies are those of FND, LAB, and SAS. Less rigorous are the studies of TXPR, 5D, and USA, which provided little information on the background or baseline characteristics of program participants and comparison groups. The studies of 5D and USA also had very small sample sizes. Results from all non-experimental studies must be interpreted cautiously.

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[5] This program, which uses university student athletes with below-basic reading skills (compared to other college students) as volunteer tutors for disadvantaged youth with reading problems in an effort to improve reading skills in both groups, is referred to here as the university student athletes tutoring program. The formal name of the program is not reported in the evaluation.

[6] This information was derived from the evaluation and confirmed during direct communication with the study's main author, Steven Schinke of Columbia University, on October 29, 2001.

PART I. CHARACTERISTICS OF ACADEMIC ACHIEVEMENT PROGRAMS

All of the programs reviewed in this synthesis are designed to improve academic achievement, although for many of them academic achievement is a *component* rather than the sole focus of the program. Thus the emphasis on academic achievement varies, as do the types of academic activities. Components of the 12 programs in this synthesis are outlined in Table 2. More detailed summaries of the programs' target populations, goals, components, and outcomes, as well as the studies' objectives, measures, and limitations, are provided in Appendices A and B.

Table 2. Summary of Study/ Program Characteristics[1]

		Program										
		BGC	CAR	5D	FND[2]	HST	LAB	QOP	SAS	STEP	TXPR	UB	USA
Study Design	Experimental	X	X			X		X		X		X	
	Quasi-experimental	X	X	X	X		X		X		X		X
Goals	Improve self-esteem								X		X		
	Improve social skills		X				X	X		X			
	Increase academic achievement	X	X	X	X	X	X	X	X	X	X	X	X
	Increase educational attainment		X					X	X	X		X	
	Decrease health risk behaviors		X					X		X			
Participants	Elementary (K – grade 6)		X	X	X	X	X				X		X
	Middle (grade 6 – 9)	10-14	X				X						
	High school (grade 9 – 12)							X	X	14-15		X	
	Academically disadvantaged					X	X	X		X			X
	Low-income	X	X				X	X	X	X		X	
Form of Activity	One-on-one		X			X	X	X	X	X		X	X
	Group	X	X		X		X	X		X	X	X	
	Mostly structured	X	X	X	X	X	X	X		X	X	X	X
	Mostly unstructured								X				
Activities	Academic	X		X	X	X	X	X	X	X	X	X	X
	Tutoring		X		X				X	X	X	X	
	Homework assistance		X		X				X		X		
	Computer	X		X	X		X						
	Board games			X	X		X						
	Academic classes	X								X		X	X
	Service-oriented							X		X			
	Recreational	X			X		X				X		
	Developmental	X	X		X		X	X		X		X	
	Job-oriented		X					X		X			

		Program											
		BGC	CAR	5D	FND[2]	HST	LAB	QOP	SAS	STEP	TXPR	UB	USA
Activity Leaders/ Tutors	College students		X	X		X							X
	Employees	X	X		X		X	X				X	
	Community (adult volunteers)	X	X		X	X	X		X				
Structure	Tutoring embedded in program	X	X		X		X	X	X	X		X	
	Volunteer training	X				X			X				X
	Support and supervision	X	X		X	X			X				X
	Financial incentive to participants		X					X	X	X			
Location	School			X	X		X	X		X		X	X
	Church, Community Center							X					
	Club	X		X									
	Other		X			X		X	X		X	X	
Time	During school day									X			X
	After school	X	X	X	X	X	X	X		X	X		X
	Summer		X						X	X		X	
	School year		X		X		X		X	X		X	
Frequency/ Duration[3]	Daily (sessions/week)	5		5	5	4	5	5			1-4		2
	Monthly (session/month)								1				
	More than 1 year[4]		X					X	X	X[5]		X	

[1] Information in this table reflects only information provided in the studies.
[2] Programs offered at different grade levels vary in scope and purpose.
[3] There may be considerable variation in attendance across sites and participants in some programs.
[4] Other programs may encourage participation for more than a year, but these programs mandate attendance for more than a year.
[5] Minimum requirements over two summer sessions: 90 hours remedial education, 18 hours life skills and opportunities instruction, 80 hours work experience.

What Goals Do the Programs Address?

Improving academic performance is one of the primary goals of The Boys and Girls Clubs of America Educational Enhancement Program (BGC), Howard Street Tutoring Program (HST), Foundations (FND), University Student Athletes Tutoring (USA), Texas Parks and Recreation Department After-School Programs (TXPR) and Upward Bound (UB). More specifically, HST and USA aim to improve reading performance, and UB and SAS aim to increase educational attainment and college enrollment and completion. Many of the other programs target the health and social development of young people as well as academic achievement. LA's Best (LAB), for example, strives to provide a safe place for students after school, enhance educational opportunities (to improve academic outcomes), and improve interpersonal skills and self-esteem. Quantum Opportunities Program (QOP) tries to foster academic and social

competencies, while The Summer Training and Education Program (STEP) works at reducing teenage parenthood and high school dropout rates. Part II shows that many of these programs have been effective in addressing these goals.

Who Are the Program/Study Participants?

Many of the programs are located in low-income neighborhoods with large minority populations, and most of them are targeted toward children and adolescents who are considered at risk of one or more negative developmental outcomes. A number of factors may put a young person at greater risk of harm than his peers—for example, low parental education, low socioeconomic status, receipt of welfare, belonging to a racial or ethnic minority, gender, living in a low-income neighborhood, living in an urban or rural area , living in a single-parent household, having a primary language other than English, poor early academic performance, or behavior problems. These factors put children and adolescents at a higher risk than others of failing or dropping out of school; engaging in harmful behaviors such as alcohol, cigarette, and drug use, early sexual intercourse, or intercourse without the use of contraception; and violent or criminal activities. Older youths may be at risk of not being able to find and maintain a job in adulthood.

Most of the programs serve children and youth who are from low-income families and/or communities (BGC, CAR, LAB, QOP, SAS, STEP, UB). For instance, the BGC youth studied were low-income, 60 percent male, predominantly black and Latino, and lived in public housing. HST study participants were low-ability readers. LAB study participants were 60 percent female, predominantly Latino (57.1 percent) and African American (26.6 percent), and lived in areas with considerable gang, drug, and criminal activity. STEP youths were defined as educationally disadvantaged and at risk of dropping out of high school. LAB, QOP, and USA children were academically disadvantaged. Many UB study participants were first-generation college prospects.

Students of all ages are targeted in these academic-oriented programs. Some programs serve participants in a single age group while others serve participants in several age groups. Specifically, seven programs serve elementary students, three serve middle school students, and four serve high school students.

What Activities Are Offered?

The activities designed to promote academic achievement vary by program, but they include homework completion and assistance, supplemental academic classes, academic games and activities, computer-assisted instruction and educational games, educational board games, one-on-one tutoring and reading, and writing and vocabulary activities.

Programs with strong academic components frequently offer recreational and arts and crafts activities, cultural enrichment activities and field trips, computer activities, college preparation assistance, nutrition and health promotion lessons or activities, community

service, employment, life and social skills training, mentoring, parent workshops, social and human services and referrals, career planning, and other activities. All program activities designed to promote the social and emotional development, health, and self-sufficiency of young people—as well as enhancing their the academic experience—should be considered important inputs when program outcomes are presented.

What Other Characteristics Do Programs Share?

In most of the programs, adult staff, activity facilitators or counselors are hired tutor students, teach classes and lead activities (BGC, LAB, QOP, UB). Quite a few programs benefited from adult volunteers from the community (BGC, CAR, FND, HST, LAB, SAS). College student volunteers were used in four programs (CAR, 5D, HST, USA).

All of the programs have at least one component that focuses on academic activities and lessons, and most programs have additional components. All have mostly structured activities. Tutoring is an integral part of eight programs, (BGC, CAR, FND, LAB, QOP, SAS, STEP, UB). At least four offer volunteer training (BGC, HST, SAS, USA).[7] Four programs offer participants financial incentives or provide them with jobs (CAR, QOP, SAS, STEP).

All of the programs have activities that take place outside regular school hours. Eleven of the programs take place after school or have an after-school component (BGC, CAR, 5D, FND, HST, LAB, QOP, SAS, STEP, USA, TXPR). Four schedule some activities during the school day, but not as a part of the regular school programming (CAR, STEP, UB, USA). At least four of the programs have summer components (CAR, SAS, STEP, UB).

Programs are community-based, as opposed to school-based. They are not organized by the schools, and few have regularly scheduled programming during the school day. The program may be run inside a school building, though most take place in another community setting, such as a church, clubhouse, or college campus. Those that do take place on school grounds are scheduled after school hours and during weekends and summers.
Seven programs have activities that take place in a school building and may be tied to the school, but few, if any, of them are held during school hours (5D, FND, LAB, QOP, STEP, UB, USA). Unlike systemic, school-based programs such as Reading Recovery and Success for All, the programs in this synthesis are not designed to change the curriculum taught by regular classroom teachers or to replace some classroom activities that take place during the school day. Such programs are not included in this synthesis because it would be difficult to determine whether academic outcomes resulted from students' receiving tutoring or additional academic assistance in the programs or from systemic changes in the school.

[7] Implementation information was seldom provided in the evaluation reports and was not otherwise available; herefore, this discussion of program structure is limited.

PART II. OUTCOMES POSITIVELY AFFECTED BY ACADEMIC ACHIEVEMENT PROGRAMS

This section describes the impact of academic achievement programs on outcomes in four areas of youth development: educational achievement and cognitive attainment, health and safety, social and emotional well-being and, for young adults, self-sufficiency. Because some programs include activities such as parent workshops, life skills for students, or financial support for college, it is important to remember that other program activities or services besides the academic assistance and enrichment activities may have contributed to the outcomes documented.

Tables 3a, 3b, 3c, and 3d – often referred to as "what works" tables – summarize the findings of experimental and quasi-experimental studies on the programs in this synthesis. The studies in these tables are limited to those that have been rigorously evaluated or for which longitudinal data (with consideration for background characteristics) are available. Each table contains:

- "Youth outcomes" – specific outcomes in each area of youth development (educational achievement and cognitive development, health and safety, social and emotional well-being, and self-sufficiency) that an academic achievement program seeks to achieve.

- "Academic achievement programs work" – evidence from experimental studies that a particular program significantly affected a particular developmental outcome.

- "Academic achievement programs don't work" – evidence to date from experimental evaluations indicating that a particular program did not affect a particular developmental outcome. This should not be construed to mean that academic achievement programs can never affect this outcome or that academic achievement programs cannot be modified to affect this outcome.

- "Mixed reviews" – evidence from experimental evaluations indicating that a particular program is effective in some, but not all studies or that it is effective for some, but not all, groups of children.

- "Best bets" – practices that may be important from a theoretical standpoint based on quasi- experimental analyses, multivariate longitudinal studies, or wisdom from the practice field, but which have not been thoroughly tested.

Although many studies may measure outcomes in each domain, more often than not, few studies measured each specific educational outcome. For this reason, the number of studies examining each outcome is reported in the "what works" tables and in the summaries. It is important to note that more research is needed in order to definitively report that programs using the academic achievement approach have a positive impact on the specific outcomes examined in this synthesis.

Educational Achievement and Cognitive Attainment

A common goal of developmental programs with an academic achievement component is to improve the academic performance of its participants. To evaluate how successful academic-oriented programs are, this section examines their impact on several educational outcomes, such as grades, test scores, repetition of a grade, and graduation from high school (see Table 3a). Few studies measured all of these outcomes, however, so more research is needed to determine impacts definitively.

Most of the experimental studies that measured students' grades found that programs did not have positive impacts on the grades of their participants. Only BGC's Educational Enhancement Program was found to have a significant impact on students' grades—and it is notable that the program compares students who received regular Boys and Girls Clubs services to those who were offered a stronger academic component in addition to these regular Boys and Girls Clubs' activities; this program had a stronger academic approach than any of the other programs evaluated. BGC participants' mean grades for reading, spelling, history, science, and social studies improved over time, and their mean grade-point average (GPA) was significantly higher than that of students in the control group. Program and comparison group students (who received regular BGC program services without the additional educational enrichment component) outperformed control group students in math grades.

In the long-term evaluation of STEP, no differences in grades were found between program and control groups. QOP was found to improve the academic skills of participants, but these differences did not translate into a significant difference between program and control group students in high school grades. Both of these programs used developmental approaches that included academic remediation and assistance for students, yet improving academic achievement was only one of their program objectives. In addition to being a short program (mainly summer activities), STEP had a major work component, to which control group students were also exposed. Similarly, QOP had two major components outside of its educational services, life skills and development activities, and community service activities.

The studies that looked at test scores before and after the program found improved scores in two programs and mixed impacts in another. HST, a tutoring program, increased reading test scores over time and also had a positive impact on word recognition and spelling test scores. STEP was found to have no impact on standardized test scores in the long-term report, but in the short-term, the program had positive effects on reading and math test scores.

Participants in CAR were less likely to repeat a grade in school. This finding may be important because repeating a grade is a predictor of dropping out of high school.

Few of the programs that looked at educational attainment outcomes were found to have any impact. One year after the end of the program, students in QOP were

less likely to drop out of high school and more likely to graduate than students in the control group, but CAR, STEP, and UB had no impact on high school dropout rates. QOP participants were more likely to be attending two-year or four-year colleges one year after the end of the program, but STEP and UB had no impact on college attendance rates. The UB evaluators warn that college attendance results should be viewed with caution because nearly one-third of the students had not yet graduated from high school at the time of the follow-up study and were therefore too young to attend college. Evaluators also note that the data reflect the experiences of students who entered UB later in high school and who therefore did not benefit from long-term involvement in the program, which was shown to be related to higher post-secondary college attendance rates. While UB did not affect overall educational attainment or attainment among black participants, higher college attendance rates were found among white and Hispanic participants.

Programs using an academic achievement approach were able to improve a number of other academic outcomes. Two studies that measured children's academic skills, as rated by teachers, showed improved ratings for participants in BGC and QOP. QOP participants improved on a general measure of academic skills, while BGC participants improved in reading and writing skills and overall performance. No difference was found between BGC participants and controls in verbal skills or homework completion.

Participants in BGC had a higher school attendance rate than did comparison or control groups. QOP and UB program participants reported higher educational expectations than youths in their respective comparison groups. A significantly higher number of QOP students achieved honors status or received awards before graduating from high school. Students in UB earned more high school credits than control group students.

UB participants showed no difference in involvement in extracurricular activities than control group students during high school, yet among those who continued on to college, UB students had a higher level of engagement in college activities (which is associated with higher levels of college retention).

Summary: Educational Achievement and Cognitive Attainment

Experimental evaluations find that nonschool academic-oriented youth development programs are able to improve educational outcomes, but their impacts are scattered and programs vary in which outcomes they are able to improve. There is scant evidence regarding their implications for long-term educational attainment.

Programs were mixed, but generally showed little effectiveness in improving direct indicators of academic achievement, including measures of academic achievement and educational attainment:

- One of two programs studied had positive impacts on participants' test scores, while the other had mixed effectiveness.

- One of five programs studied boosted participants' grades significantly above those of control group members.
- One program increased participants' progression through grades.
- One of four programs studied had a positive overall impact on the educational attainment of participants.

Programs were generally effective at improving academic-related and scholastic outcomes:

- One of two programs had a positive impact on all of the academic skills measured, while the other was able to increase some of them.
- One of two programs had a positive impact on students' attendance at school.
- Two of three programs studied improved educational goals; one did not.
- One program increased the number of high school credits participants earned.
- One program increased the number of students who received academic honors and awards.

Thus it appears that programs were better able to affect academic-related outcomes than purely academic outcomes, as indicated by grades, grade advancement, test scores, and educational attainment. Some evidence suggests that programs with a stronger academic focus are more effective at improving academic outcomes than those with a less strong focus on academic activities, but more rigorous research is needed to determine whether this is the case.

Table 3a. Effects of Academic Achievement Programs on Educational Achievement and Cognitive Attainment*

YOUTH OUTCOMES	ACADEMIC ACHIEVEMENT PROGRAMS WORK	ACADEMIC ACHIEVEMENT PROGRAMSDON'T WORK	MIXED REVIEWS	BEST BETS
EDUCATION				
GRADES (5 experimental studies)			In comparison to control group: • Program participants showed no difference at final follow-up evaluation in English, writing, and geography grades.[BGC] • Program participants had higher grades in reading, spelling, history, science, and social studies and in overall GPA than control and comparison groups.[BGC] • Program participants showed no difference in grades.[CAR, STEP] • Program participants showed no difference in high school grades, although academic skills increased significantly.[QOP] • Program participants showed no difference in GPA.[UB]	Best bets for improving school grades, according to quasi-experimental evaluations: • High-quality mentoring and academic tutoring and educational assistance[SAS] • Strongly academic-focused after-school programs providing homework assistance, recreational, tutoring, sports, and cultural activities and trips[FND, LAB, TXPR] • Academic-oriented programs lasting for two years[LAB, STEP, USA] Multivariate, longitudinal studies suggest the following are positively related to school grades and test scores: • Prior achievement, ability levels • School engagement • Academic self-concept, global self-esteem • For adolescents who work—participating in the labor force during the summer months or working no more than 20 hours per

* **Program symbols:**

BGC	Boys and Girls Clubs of America	QOP	Quantum Opportunities Program
CAR	Children at Risk	SAS	Sponsor-A-Scholar
5D	Fifth Dimension	STEP	Summer Training and Education Program
FND	Foundations	TXPR	Texas Parks and Recreation Department After-School Program
HST	Howard Street Tutoring	USA	University Student Athlete Tutoring
LAB	LA's BEST	UB	Upward Bound

YOUTH OUTCOMES	ACADEMIC ACHIEVEMENT PROGRAMS WORK	ACADEMIC ACHIEVEMENT PROGRAMSDON'T WORK	MIXED REVIEWS	BEST BETS
				week during the school year • Parent involvement, especially communicating directly with children and participating in their activities • Adolescents' involvement with high-achieving peers • Educational attainment of adults, parents • Not hanging out with peers without parental supervision for long periods of time • Participation in structured, supervised extracurricular activities • Taking academic-track or other higher-track courses • Early attendance at high-quality childcare center, especially among disadvantaged, low-income children
TEST SCORES (2 experimental studies)			In comparison to control group: • Program participants had higher test scores for reading and math soon after the summer program ended; no impact was found on standardized scores in long-term report. STEP • Program participants received higher mean scores on tests of word recognition, reading passages, and spelling. HST • Program participants experienced greater gains over time in word recognition, reading passages, and spelling mean test scores. HST	Best bets for improving test scores: • Strongly academic-focused after-school programs providing homework assistance, recreational, tutoring, sports, and cultural activities and trips. FND, TXPR, USA Results of multivariate, longitudinal studies of the individual, family, and school characteristics positively related to school grades and test scores are presented above.

YOUTH OUTCOMES	ACADEMIC ACHIEVEMENT PROGRAMS WORK	ACADEMIC ACHIEVEMENT PROGRAMSDON'T WORK	MIXED REVIEWS	BEST BETS
GRADE PROGRESSION VS. REPETITION (1 experimental study)	In comparison to control group: • Program participants were less likely to repeat a grade.[CAR]			
GRADUATES FROM HIGH SCHOOL OR DROPS OUT (4 experimental studies)			In comparison to control group: • Program participants were less likely to drop out of high school and more likely to graduate from high school one year after the end of the program.[OOP] • Program participants showed no difference in likelihood of having dropped out of high school.[CAR, STEP, UB]	Multivariate, longitudinal studies suggests the following are positively related to graduation from high school: • Academic achievement • Involvement in extracurricular activities • Not using drugs during adolescence • Not having early sex or becoming a parent during middle or high school years • Social psychological well-being, self-esteem, perceived academic ability, school engagement (attendance), educational aspirations • Not having problem behavior or aggressive behavior • Not working long hours during school year (over 20 per week) • Not repeating a grade or being over age for grade • High quality early child care program attendance

YOUTH OUTCOMES	ACADEMIC ACHIEVEMENT PROGRAMS WORK	ACADEMIC ACHIEVEMENT PROGRAMSDON'T WORK	MIXED REVIEWS	BEST BETS
ATTENDS COLLEGE (POST-SECONDARY EDUCATION) (3 experimental studies)			**In comparison to control group:** • **Program participants were more likely to be attending a two-year or four-year post-secondary school one year after the end of the program.**[QOP] • **Program participants showed no difference in college enrollment/ attendance rate.**[STEP, UB]	**Best bets for improving college attendance rates:** • **High quality mentoring and academic tutoring and educational assistance.**[SAS] Multivariate, longitudinal studies suggests that most of the individual, family, and school characteristics found to be positively related to graduating from high school are the same as those that are related to attending college—see section above. In addition, the following has been found to be related to college attendance: • Curricular rigor and credits earned in high school.
ACADEMIC SKILLS/ HOMEWORK COMPLETION (2 experimental studies)			In comparison to control group: • Teachers reported higher reading, verbal and writing skills and overall performance in program group participants at the 18 month follow-up. Program youth did not differ empirically from "comparison" group youth at the 30-month follow-up.[BGC] • Program youth showed higher verbal skills and completion of homework than comparison and control group youth at the 18 month follow-up, but did not differ from the "comparison" group youth at the time of the 30 month follow-up.[BGC] • Program participants demonstrated higher academic skills.[QOP]	Best bets for improving academic/ thinking skills: • After-school program offering educational computer games and activities, board games, and recreational activities[SD]

YOUTH OUTCOMES	ACADEMIC ACHIEVEMENT PROGRAMS WORK	ACADEMIC ACHIEVEMENT PROGRAMSDON'T WORK	MIXED REVIEWS	BEST BETS
ATTENDANCE AT SCHOOL (2 experimental studies)			In comparison to control group: • Program participants showed no difference.[CAR] • Program participants had higher mean attendance rate than "comparison" and control groups.[BGC]	
EDUCATIONAL GOALS (3 experimental studies)			In comparison to control group: • Program participants showed no difference in educational or work expectations.[CAR] • Program participants reported higher educational expectations.[QOP, UB]	Best bets for improving educational goals: • Strongly academic-focused after-school programs providing recreational, tutoring, homework assistance, sports, and cultural activities and trips[LAB]
HONORS, AWARDS (1 experimental study)	In comparison to control group: • A significantly higher number of program participants received honors status or awards before graduating from high school.[QOP]			
HIGH SCHOOL CREDITS EARNED (1 experimental study)	In comparison to control group: • Program participants earned more high school credits.[UB]			
PARTICIPATION IN EXTRACURRICULAR ACTIVITIES IN HIGH SCHOOL (1 experimental study)		In comparison to control group: • Program participants showed no difference in participation in extracurricular activities in high school.[UB]		
PARTICIPATION IN EXTRACURRICULAR ACTIVITIES IN COLLEGE (1 experimental study)	In comparison to control group: • Program participants had higher levels of engagement in college activities.[UB]			

YOUTH OUTCOMES	ACADEMIC ACHIEVEMENT PROGRAMS WORK	ACADEMIC ACHIEVEMENT PROGRAMSDON'T WORK	MIXED REVIEWS	BEST BETS
ATTITUDES ABOUT SCHOOL (1 quasi-experimental study)				**Best bets for improving attitudes toward school:** • Strongly academic-focused after-school programs providing recreational, tutoring, homework assistance, sports, and cultural activities and trips [LAB]

Health and Safety

Programs with an academic focus were somewhat successful at improving health and safety outcomes for children and adolescents (see Table 3b). Theory and previous research suggest that improved academic performance might influence risk-taking and health-promoting behaviors such as smoking (Griffin, Botvin, Doyle, Diaz, & Epstein, 1999; Jackson, Henriksen, Dickinson, Messer, & Robertson, 1998; Wang, Fitzhugh, Green, Turner, Eddy, & Westerfield, 1999). However, most of these programs did not target such outcomes, so any impact they had should actually be viewed as indirect. Also, because most of the programs did not number improving health and safety outcomes among their goals, many studies did not measure these outcomes. Therefore, each of the following health and safety outcomes was measured in three or fewer evaluations.

One program decreased drug use among participants. In CAR, a program with the goal of decreasing substance use, participants reported less use of gateway drugs and stronger drugs in the past month and one year after the program's end than control groups. Participants also reported less overall drug use.

Two programs increased knowledge of contraceptives and responsible sexual behavior in participants, but did not consistently result in decreased participation in risky behaviors such as becoming sexually active without using contraceptives.[QOP, STEP] For example, STEP increased reported contraceptive use among one of two groups of program participants, but pregnancy rates of program and control groups did not differ significantly in the long term. QOP had no initial impact on the childbearing rate, but program participants were found to have fewer children one year after the end of the program. No difference in childbearing was found between CAR participants and the comparison and control groups.

Summary: Health and Safety

Impacts on health and safety outcomes have been examined in only a handful of programs. **Overall, academic-oriented programs that also target specific risky behaviors have been found to be more effective at decreasing those behaviors than programs with a predominantly academic focus.** Few studies examined health and safety outcomes, however, so more research on potential effects is necessary.

- One program decreased reported drug use among the small number of participants studied, while another had no impact on exposure to drugs, alcohol, and cigarettes.
- Two programs increased knowledge of contraceptives and responsible sexual behavior, but these programs did not decrease participants' childbearing rates or sexually risky behaviors, as measured by pregnancy rates.
- One program had no impact on participants' childbearing rate, while another had no impact initially but decreased childbearing one year after the end of the program.

Table 3b. Effects of Academic Achievement Programs on Health and Safety*

YOUTH OUTCOMES	ACADEMIC ACHIEVEMENT PROGRAMS WORK	ACADEMIC ACHIEVEMENT PROGRAMS DON'T WORK	MIXED REVIEWS	BEST BETS
HEALTH AND SAFETY				
USE OF DRUGS (1 experimental study)	In comparison to control group: • Program participants reported less use of gateway drugs, stronger drugs, and overall drug use in the past month and one year after the program ended.[CAR]			
KNOWLEDGE/USE OF CONTRACEPTIVES, RESPONSIBLE SEXUAL BEHAVIOR (2 experimental studies)	In comparison to control group: • Program participants have greater knowledge of contraceptives and responsible sexual behavior practices.[QOP, STEP]		In comparison to control group: • One cohort of program participants report greater use of contraceptives during intercourse, while another cohort of program participants did not differ significantly from control group youth in their use of contraceptives.[STEP]	
PREGNANCY RATES (1 experimental study)		In comparison to control group: • Program participants showed no difference in teen pregnancy rate.[STEP]		

* **Program symbols:**

BGC	Boys and Girls Clubs of America	QOP	Quantum Opportunities Program
CAR	Children at Risk	SAS	Sponsor-A-Scholar
5D	Fifth Dimension	STEP	Summer Training and Education Program
FND	Foundations	TXPR	Texas Parks and Recreation Department After-School Program
HST	Howard Street Tutoring	USA	University Student Athlete Tutoring
LAB	LA's BEST	UB	Upward Bound

YOUTH OUTCOME	ACADEMIC ACHIEVEMENT PROGRAMS WORK	ACADEMIC ACHIEVEMENT PROGRAMS DON'T WORK	MIXED REVIEWS	BEST BETS
CHILDBEARING RATES **(2 experimental studies)**			**In comparison to control group:** • Program participants showed no difference initially in their childbearing rate, but had fewer children one year after program ends.[GOP] • Program participants showed no difference in childbearing rate.[CAR]	

Social and Emotional Well-Being

Academic achievement programs had mixed success at improving social and emotional outcomes among the young people who participated in them (see Table 3c). As with health outcomes, programs that specifically targeted social and emotional outcomes were better at improving them than were programs with a stronger academic focus.

A study of the strongly academic BGC, for example, did not find evidence of an impact on the social and emotional outcomes measured. In particular, the study found no difference in the number of negative behavioral incidents between program, comparison, and control groups. Although BGC did not directly target these outcomes, they might have been affected because the program provides a safe space after school with positive peers and caring adults who interact with participants socially as well as academically and creatively. Furthermore, theory and prior research indicate that programs which produce positive academic outcomes are likely to be associated with, or to lead to, positive social and emotional outcomes in the students they serve.

As expected, QOP, which provided developmental life skills activities and volunteer activities in addition to educational services, had a positive impact on all long-term outcomes measured. **QOP participants had fewer arrests than youths in the control group.** CAR, which also targets social and emotional outcomes, had a mostly positive impact on participants. **CAR participants were less likely to sell drugs and to have peers involved in delinquent activities**. However, unlike QOP participants, **CAR program youth were not found to be less involved with the juvenile justice system.** No difference in gang membership was found between participants and the control group in CAR.

Two programs increased positive social attitudes and participation in positive social activities.[CAR,QOP] CAR increased youth involvement in clubs, sports, community programs, etc. QOP participants had higher rates of volunteering and more positive attitudes toward the future, school, and helping the elderly

Summary: Social and Emotional Well-being

Some academic-oriented programs improve social and emotional outcomes for participants, but their effectiveness is mixed. **In general, academic-oriented programs that specifically target students' social and emotional well-being are more effective than other academic-based programs at improving these outcomes.** Few studies have evaluated these outcomes, so more research is needed.

- One program found no difference in the behavior ratings given by parents and teachers for program participants and nonparticipants.
- One program decreased drug dealing among participants.
- One program had positive impacts on behavioral incidents related to delinquency, while another had mixed impacts on these behaviors.

- One program increased participants' involvement in positive social activities and clubs, while another improved participants' positive social attitudes and behaviors.

Table 3c. Effects of Academic Achievement Programs on Social and Emotional Well-Being*

YOUTH OUTCOMES	ACADEMIC ACHIEVEMENT PROGRAMS WORK	ACADEMIC ACHIEVEMENT PROGRAMS DON'T WORK	MIXED REVIEWS	BEST BETS
SOCIAL AND EMOTIONAL				
NEGATIVE BEHAVIORAL INCIDENTS (1 experimental study)		In comparison to control group: • Program participants showed no difference in the number of behavioral incidences between the program, comparison and control groups.[BGC]		
BEHAVIORS RELATED TO DELINQUENCY (2 experimental studies)			In comparison to control group: • Program participants had fewer arrests.[QOP] • Program participants were less likely to sell drugs.[CAR] • Program participants reported fewer peers involved in delinquent activities.[CAR] • Program participants showed no difference in gang membership.[CAR] • Program participants showed no difference in contact with juvenile justice system agencies, based on police and court records.[CAR]	

* **Program symbols:**

BGC	Boys and Girls Clubs of America	QOP	Quantum Opportunities Program
CAR	Children at Risk	SAS	Sponsor-A-Scholar
5D	Fifth Dimension	STEP	Summer Training and Education Program
FND	Foundations	TXPR	Texas Parks and Recreation Department After-School Program
HST	Howard Street Tutoring	USA	University Student Athlete Tutoring
LAB	LA's BEST	UB	Upward Bound

YOUTH OUTCOMES	ACADEMIC ACHIEVEMENT PROGRAMS WORK	ACADEMIC ACHIEVEMENT PROGRAMS DON'T WORK	MIXED REVIEWS	BEST BETS
PARTICIPATION IN POSITIVE SOCIAL ACTIVITIES (1 experimental study)	**In comparison to control group:** • Program participants took part in more positive social activities (clubs, religious groups, sports, community programs, etc.).[CAR]			
POSITIVE ATTITUDES TOWARD SCHOOL, FUTURE, HELPING THE ELDERLY (1 experimental study)	In comparison to control group: • Program participants had higher rates of positive attitudes toward the future.[QOP] • Program participants had higher rates of volunteering.[QOP]			
SELF-ESTEEM (1 quasi-experimental study)				**Best bets for improving global self-esteem:** • Strongly academic-focused after-school programs providing recreational activities, tutoring, homework assistance, sports, and cultural activities and trips.[TXPR]

Self-Sufficiency

Programs using an academic achievement approach are expected to improve academic outcomes in their participants. Young people who develop basic academic skills and higher order cognitive thinking skills and who attain higher levels of education are likely, in turn, to become self-sufficient adults in the areas of both work and family. Outcomes for these young adults are expected to be better than those for young people who are not successful academically. Therefore, academic achievement programs that improve long-term academic outcomes for participants may also have a positive impact on other long-term outcomes, such as self-sufficiency during early adulthood.

Only two programs, QOP and STEP, offered services or activities, such as life skills development classes and work/volunteer activities, in an effort to promote self-sufficiency. Both programs had mixed success in improving employment outcomes. **QOP participants were less likely to be unemployed one year after the end of the program, but STEP had no impact on the employment rate of participants in comparison to the control group.** It is important to note, however, that STEP's control group could have had at least as many work activities as participants during summer months. Participants attended remedial and life skills classes in addition to working, whereas students in the control group were assigned to jobs only. **The wages and hours of work for young people who participated in STEP were not higher than those of the control group. The program had no impact on likelihood of receiving welfare benefits or food stamps.**

QOP had a positive impact on involvement in productive activities, measured as percent employed or involved in school or community service.

Summary: Self-Sufficiency

One program shows evidence of limited effectiveness at improving self-sufficiency in young adults. Only two programs targeted such outcomes, so more experimental evaluations are necessary to understand whether academic-oriented programs can improve participants' self-sufficiency in young adulthood.

- QOP improved employment and involvement in productive activities.
- In contrast, STEP was unable to improve employment and hours of work, wages, or receipt of welfare.

Table 3d. Effects of Academic Achievement Programs on Self-Sufficiency*

YOUTH OUTCOMES	ACADEMIC ACHIEVEMENT PROGRAMS WORK	ACADEMIC ACHIEVMENT PROGRAMS DON T WORK	MIXED REVIEWS	BEST BETS
SELF-SUFFICIENCY				
EMPLOYMENT (2 experimental studies)			In comparison to control group: • Program participants are less likely to be unemployed one year after program ends.[QOP] • Program participants showed no difference in employment rate.[STEP]	
WAGES (1 experimental study)		In comparison to control group: • Program participants showed no difference in wages or hours.[STEP]		
WELFARE RECEIPT (1 experimental study)		In comparison to control group: • Program participants showed no difference in receipt of welfare (AFDC income transfer payments) or food stamps.[STEP]		
PRODUCTIVE ACTIVITY (1 experimental study)	In comparison to control group: • Program participants are more likely to be involved in productive activities (measured as employed, participation in community service, in school).[QOP]			

* **Program symbols:**

BGC	Boys and Girls Clubs of America	QOP	Quantum Opportunities Program
CAR	Children at Risk	SAS	Sponsor-A-Scholar
5D	Fifth Dimension	STEP	Summer Training and Education Program
FND	Foundations	TXPR	Texas Parks and Recreation Department After-School Program
HST	Howard Street Tutoring	USA	University Student Athlete Tutoring
LAB	LA's BEST	UB	Upward Bound

Summary of Academic Achievement Program Impacts

- **Overall, academic achievement programs were mixed in their ability to improve educational outcomes among participants, although some evidence suggests that programs with a strong focus on academic activities are more effective.** One program had positive impacts on test scores, while another showed mixed effects. One program significantly improved classroom grades. However, only one program had a positive impact on the educational attainment of program participants. **Although few programs measured all outcomes, academic-oriented programs appeared to be successful at improving such outcomes as grade progression in school, high school credits earned, and receipt of honors and awards.**

- **Three programs that aimed to improve specific health outcomes were able to do so**, while one strongly academic-oriented program had no effect on health outcomes. Two programs increased participants' knowledge of contraceptives and responsible sexual behavior, and another decreased reported drug use. The increased knowledge of responsible sexual behavior did not appear to translate into decreased involvement in sexually risky behavior, such as becoming sexually active without using contraceptives. One program did find that participants had significantly lower rates of childbirth one year after the end of the program. A program that did not target sexual behavior had no impact on childbearing rates.

- **Academic achievement programs showed mixed effectiveness at improving social and emotional outcomes among participants.** In general, programs that target social and emotional outcomes appear to be more effective at improving these outcomes than strongly academic-based programs. One program found no difference in parents' and teachers' ratings of behavior for program participants and nonparticipants. Two programs had positive effects on behavioral incidents related to delinquency, such as involvement with the police, while one had mixed effectiveness on such incidents. One program increased youth involvement in positive social behaviors, while another improved positive social attitudes and behaviors in participants.

- **Programs were mixed, across programs, in their effectiveness at improving self-sufficiency in young adults.** Only two programs targeted self-sufficiency among participants. One program had a positive impact on employment and involvement in productive activities such as employment, school, and community service after the program ended. The other had no impact on employment or wages and no impact on welfare receipt. More research is needed to understand the impact that participation in academic-oriented programs may have on young adults' self-sufficiency.

Overall, nonschool academic achievement programs included in this synthesis have mixed but promising findings. Academic-oriented programs appear to be more effective at improving academic-related outcomes than other developmental outcomes.

Programs found to improve social, emotional, health, and self-sufficiency outcomes are likely to have targeted these outcomes directly through a component that focuses on them. **More rigorous research is needed in order to state definitively that academic-oriented programs are able to affect a variety of developmental outcomes.**

PART III. PROGRAM AND PARTICIPANT CHARACTERISTICS ASSOCIATED WITH POSITIVE OUTCOMES

Quasi-experimental studies reveal some characteristics of nonschool academic achievement programs and their participants that are associated with positive outcomes. Because these evaluations are not experimental in design, causality cannot be established definitively. Therefore, such characteristics are described as best bets (see Table 4).

Frequency, Intensity, and Duration of Participation

Greater participation by young people appears to produce better outcomes. Although students' attendance and involvement in programs may depend upon their own and their parents' needs and interests, some programs set goals for attendance or provide stipends or progressive activities that vary with participants' age. Although it is not clear to what extent participants' attendance stems from individual differences in motivation or from program characteristics, such as the provision of stipends or progressive programming that varies for students based on age, evidence from quasi-experimental analyses suggests that young people who participate more gain more from their experience in a program.

It may be easier to enroll children in a program than to get them actively involved in it, but a program cannot be expected to produce results if participants don't attend regularly. Likewise, if students attend programs that offer academic and nonacademic activities but do not regularly participate in the academic components, the program cannot be expected to exert a positive impact on academic outcomes. On the other hand, involvement tends to be highly self-selected, so participation, per se, may not be the critical factor.

Many studies did not analyze how length of participation in a program, the degree of involvement in a program, or the frequency with which students attended the program. Yet many of them did measure program attendance, attendance at academic activities, and other types of involvement. These studies found differences in academic outcomes among subgroups of participants, depending on their degree of involvement.

Length of participation may also be related to ability to produce results. In QOP and LAB, positive effects were not realized in the first two years. Moreover, positive effects were stronger for young people who participated in QOP longer, leading evaluators to estimate that the program probably takes two years to have an impact. For LAB participants, positive findings occurred even later. Program evaluators associate the delayed findings with the increase in the number of young people participating over time and to more participants being in the program for two years.

High school students with longer exposure to UB had higher rates of college enrollment and rates of attendance at more selective colleges, and they earned more post-secondary credits. However, little overall difference was found between those who

completed the program and those who did not. Last, second-graders who were tutored for two years in USA had higher mean scores than second-graders in the same school who were not tutored.

Participants in the STEP summer program made modest academic gains, while the control group suffered an academic loss over the summer. Test scores of the two groups were significantly different soon after the summer program, but participants' gains faded out during the school year. Evaluators believe longer participation might have helped the effects last. They hypothesize that the control group experienced more rapid growth in academic performance during the school year, enabling them to catch up with STEP participants.

Participants' involvement in BGC's educational enhancement program was gauged via staff ratings of attendance at educational activities, degree of participation in activities, completion of assignments, and degree of parental involvement. As they expected, evaluators found program involvement to be correlated with favorable student reports of enjoyment and engagement in reading, writing, geography, verbal skills, and tutoring activities.

Quality of Tutoring and Mentoring Relationships

Some evidence suggests that high-quality tutoring and mentoring relationships result in better academic outcomes. The quality of tutoring relationships was studied in one of the two tutoring programs included in this synthesis.[USA] Relationships were measured not by number of sessions, but by whether a bond developed between tutor and student. Close bonds and superior teaching methods (as determined through videotaped sessions) resulted in higher academic achievement. Specifically, the reading scores of students in successful tutoring relationships were raised from below average to above the 50th percentile.[USA]

A study of SAS found that high-quality mentoring and tutoring relationships were related to improved academic achievement, including grades, GPA, college attendance, and college retention.

Table 4. "Best Bets" for Effective Academic Achievement Programs *

PROGRAM PARTICIPANT CHARACTERISTICS	BEST BETS	E	H	SE	SS	MIXED REVIEWS/CAUTIONARY NOTES	E	H	SE	SS
DEGREE OF PROGRAM INVOLVEMENT (1 study)	Students with greater levels of participation in the program (based on attendance in educational activities, degree of participation, completion of assignments, and degree of parental involvement as rated by program staff) had: Higher levels of self-reported enjoyment and engagement in reading, writing, geography, verbal skills, and tutoring.[BGC]	X								
LENGTH OF PARTICIPATION IN PROGRAM (5 studies)	Positive academic findings were not present until 2 years into the evaluation. Evaluators believe that this may be due to more program members participating in the program (experiencing "treatment") as time went on. They also believe it may be due to participants being exposed to the program for 2 years.[LAB] Positive academic effects of the summer program did not last; evaluators believe longer participation may have helped to make them last.[STEP] Longer–term participants benefited more from program.[UB] Positive program effects did not become apparent until after 2 years, so evaluators believe at least 2 years of participation may be necessary to yield positive results.[QOP] Students who continued to receive tutoring into a second year maintained their edge over other students. When mean test scores were benchmarked against those of non-tutored second graders in the same school (not a specified comparison group), program participants maintained higher mean scores.[USA]	X		X	X		X	X	X	

" Youth outcome domains: E Educational Achievement; H Health and Safety; SE Socio-emotional; SS Self-Sufficiency

* Program symbols: BGC Boys and Girls Clubs of America; CAR Children at Risk; 5D Fifth Dimension; FND Foundations; HST Howard Street Tutoring; LAB LA's BEST; QOP Quantum Opportunities Program; SAS Sponsor-A-Scholar; STEP Summer Training and Education Program; TXPR Texas Parks and Recreation Department After-School Program; USA University Student Athlete Tutoring; UB Upward Bound

PROGRAM/PARTICIPANT CHARACTERISTICS	"BEST BETS"	E	H	SE	SS	MIXED REVIEWS/CAUTIONARY NOTES	E	H	SE	SS
QUALITY OF MENTORING/ TUTORING RELATIONSHIP (2 studies)	Students who developed bonds with their tutors (as determined through videotaped sessions) had: Higher reading scores, exceeding the 50th percentile.[USA] Students who had the highest positive rating of their mentoring relationship had: Higher grades[SAS] Students whose mentors contacted them most often had: Higher 10th/11th grade GPAs[SAS] Higher 1st /2nd yr college attendance [SAS] Higher college retention [SAS] Students who said their mentors knew their parents well had: Higher GPA[SAS] Higher levels of college attendance[SAS]	X				Students who saw or talked rarely with their mentors had: Virtually no significant impacts on academics compared to the control group[SAS] Lower self-esteem[SAS]	X		X	

Summary of Characteristics Associated with Positive Outcomes

- Evidence from programs suggests that longer participation and more frequent participation in programs is related to positive youth outcomes, particularly in the education domain.

- One study suggests that longer participation in programs promotes longer-lasting effects.

- Two studies show that the development of close tutoring and mentoring relationships in a program is related to improved academic test scores for participants.

PART IV. UNANSWERED QUESTIONS

Because of the disparity in the skills and knowledge among students in the public education system, there is widespread interest in initiating out-of-school academic achievement programs. Some experimental research has been done on existing programs, but additional research would be particularly helpful if it addresses questions raised by those who seek to implement academic-oriented programs. Thus, research that evaluates and compares variations in academic-oriented programs would be of great interest. Many existing programs have several academic components or combine academic components with activities that further nonacademic goals Future research should therefore be designed to compare various models of tutoring, characteristics of program participants, and the impacts of various components. Answers to the following questions would be particularly helpful:

- What components work? Is some set of activities more effective than others? Are academic tutoring, homework assistance, and classroom-like lessons more effective than a broader approach? Is one academic approach more effective than others?

- Are certain program approaches more effective than others? For example, is group tutoring, educational games, or lessons as effective as individualized tutoring, games, or lessons?

- Does the effectiveness of academic-oriented programs vary by student group or initial degree of risk?

- On what youth outcomes do academic-oriented programs exert an impact?

- Does the effectiveness of academic-oriented programs vary by age group? Do different components work better for different age groups?

- Are activities that match program activities to lessons learned in school more effective than programs that focus on making activities seem less like schoolwork? Are students confused by programs that use different teaching methods and approaches from those used in school? Do programs that use methods or approaches different from those used in school help students who have difficulty learning in the regular school environment?

- Is homework completion assistance an important component of after-school programs? How much should a program focus on homework?

- How do other supportive program inputs (such as recreational, volunteer, life-skills activities, etc.) influence the impact of academic achievement on youth outcomes?

- Are solely academic programs effective as a stand-alone intervention for influencing academic outcomes?

- What are the trade-offs to consider in deciding whether to develop a community-based program or a school-based or place-based program?

This synthesis identifies program practices that have been associated, in quasi-experimental studies, with positive outcomes and high-quality mentoring relationships. However, to provide sound, practical suggestions for practitioners, experimental studies of various programs must be carried out. The following questions regarding structure of academic-oriented programs need answers:

- How can one assess quality in tutoring and other program activities? Can the field agree upon standards and benchmarks to assess best practices and the characteristics of effective teaching methods and program activities?

- How much do high-quality academic achievement programs cost? How does their cost compare with the costs of other program interventions?

- How much training and ongoing support for tutors, volunteers, and program staff is needed to achieve good outcomes?

- What is the best way to identify and recruit volunteers and program staff? What staffing and resources are needed for these efforts? What characteristics are best for staff?

- Is there a minimum frequency and duration of participation before programs become effective?

- How much and what kind of interaction between regular school teachers and program activity leaders helps to improve student outcomes?

In sum, this synthesis suggests that programs with a strong academic component result in scattered positive impacts on the educational, health, and social and emotional development of participants, helping them to become self-sufficient young adults. Yet in spite of everything that rigorous studies of these programs have revealed, many questions remain unanswered, and much remains to be learned.

Appendix A: Program and Study Descriptions[8]

Program: BOYS AND GIRLS CLUB OF AMERICA EDUCATIONAL ENHANCEMENT PROGRAM (BGC)

Population Served:

Size: 3.3 million boys and girls served in 2,851 club locations

Age: Elementary and secondary school age

Other Characteristics: Children in low-income households living in public housing; 63% black, 19% Hispanic, 13% white, 5% Asian and other; 40% female, 60% male.

Program Components:

Component	Provided by	Duration	Description
Recreational, educational, computer, and other activities	Program staff	weekly, for 30 months	On-site (BGC) and outside sessions after school
Educational Enhancement activities	Program staff	weekly, for 30 months	4 – 5 hours discussion; 1 – 2 hours creative writing; 4 – 5 hours leisure reading; 5 – 6 hours homework completion; 2 – 3 hours helping other children with schoolwork; 4 – 5 hours of board games and other educational activities

Program Objectives/Goals:

To improve academic performance.

Study:

Schinke, S., Cole, K., & Poulin, S. (2000). Enhancing the educational achievement of at-risk youth. *Prevention Science, 1*(1), 51-60.

Study objectives and measurements:

Objective

Evaluate the effectiveness of an educational enhancement program approach on school performance of economically disadvantaged youth.

Measurement instrument

Likert-scaled items including self-report of engagement in educational, community service, and cultural activities; teacher report of similar items; grades in core subjects (school data); attendance records; records on behavioral incidents.

Evaluation:

Type: Mixed. Quasi-experimental and stratified random assignment with pre-test/post-test data collected at 6, 18, and 30 months after the implementation of the educational enhancement program. Five sites were assigned to treatment (labeled in study as "program group") status, where participants received the educational enhancement programming (Project Learn's Power Hour) in addition to regular Boys and Girls Club activities; 5 sites were assigned to a control group (labeled in study as "comparison group") status, where regular Boys and Girls services were offered, but no additional educational enhancement activities; and 5 sites were matched groups which had comparison group (labeled in study as "control group") status, where children attended non-Boys and Girls Clubs youth programs that did not provide educational programming beyond normal program services. In this report, we focus on empirical contrasts made between treatment and control (as we define them, not as they are labeled) groups who voluntarily joined Boys and Girls Clubs.

Statistical techniques: Duncan multiple range tests; ANOVA; significance level=.05

[8] The format of these descriptions is revised from "Mentoring At-Risk Youth: A Research Review and Evaluation of the Impacts of the SAS program on Student Performance" (Johnson, 1997).

Population evaluated: 191 students age 10 – 14 (average age 12) living in public housing in New York City; Cleveland, OH; Oakland, CA; Tampa, FL; and Edinburgh, TX.

Outcome:
Increased GPA at 6-month, 18-month, and 30-month follow-up;
At the 18-month follow-up, increased grades in math, English, writing, reading, spelling, history, and science; no impact on school attendance or behavioral incidences.
At the 30-month follow-up, increased grades in math, reading, spelling, history, science, social studies, and reading and writing skills; no impact on grades in English, writing, geography, verbal skills; increased school attendance; no impact on behavioral incidences.

Other Information:
249 of the original 283 children in the sample (or 87.99%) completed the 18-month follow-up post-test, for an attrition rate of 12.01%. High overall attrition rate of 32.51% at the 30-month follow-up. Of the 283 students who completed the pre-test, 191 students, or 67.49%, completed the post-test and make up the final sample.

Program: CHILDREN AT RISK PROGRAM (CAR)

Population Served:

Size: Not provided

Age: 11 – 13 years old and attending middle school in the neighborhood

Other Characteristics: Children living in high-risk environments. Small, well-defined neighborhoods characterized by extreme poverty, high crime, and intense social distress

Program Components:

Component	Provided by	Duration	Description
Community-enhanced policing/enhanced enforcement	Community police officers	Throughout the program; no length given	Increased police presence in and around school grounds. Police worked with community on crime prevention activities. Residents knew police officers by name and had more positive contacts with police.
Case management	Case managers	Throughout the program as needed	Assessed the service needs of participants, developed and implemented plans to meet those needs. Caseload size 15 – 18 children.
Criminal justice/juvenile justice intervention	Case managers	Throughout the program as needed	Case managers worked with criminal justice and juvenile justice authorities when CAR youths became involved with the courts.
Family services	Case managers	Throughout the program as needed	Therapeutic services and skills training to help families and adult caregivers improve their functioning
After-school and summer activities	Existing local programs and CAR-sponsored activities	After school and summer throughout the program; duration varied, but there was always one program operating	Increased access to existing local programs and developed special CAR-sponsored activities
Education services	Local college students or individual help	Throughout the program as needed	Provided tutoring and homework assistance to all participating youth and referrals to other services as needed
Mentoring	College student mentors, parents, and other adult volunteers	Saturdays during the school year and 5 weeks during the summer.	One-on-one at one site; group mentoring at other sites
Incentives		As needed	Monetary and nonmonetary incentives

Program Objectives/Goals:

- To prevent drug use and delinquency among high-risk youth and promote health.
- To provide intensive education, social services, and justice system activities for an impoverished neighborhood.
- To enhance real and perceived safety of program participants.
- To enable participants to become productive, drug-free, and law-abiding citizens.

Study:

Harrell, A., Cavanaugh, S., & Sridharan, S. (1999). *Evaluation of the Children at Risk Program: Results 1 year after the end of the program. Research in Brief.* Washington, DC: U.S. Department of Justice, Office of Justice Programs, National Institute of Justice.

Study objectives and measurements:

Objective

Evaluate the effectiveness of CAR.

Measurement instrument

Interviews with sample youths at the time of program entry, 2 years at the end of the intervention period, and 1 year after the end of the program. Parent/primary caregiver interviews conducted before the start of the program and at the end of the program period. Records from schools, police, and courts collected annually.

Evaluation:

Type: Mixed. Experimental and quasi-experimental design.

Statistical techniques:

Impact evaluation; significance level=.05

Population evaluated: 338 participants, average age 12.4 years at time of entry into the program. In addition, a control group of 333 youths and a comparison group of 203 youths. Youths were from Austin, TX; Bridgeport, CT; Memphis, TN; Savannah, GA; and Seattle, WA.

Outcome: One year after the end of the program, CAR participants had significantly less involvement in drug use, drug selling, and violent crime and had improved educational attainment. Property crimes, running away, and sexual abuse activity were not prevented. No impact on the frequency or likelihood of involvement with the justice system.

Other Information:

Full samples did not report drug use and crime data. No background or baseline information provided on study groups who did provide information.

Program: FIFTH DIMENSION (5D)

Population Served:

Size: 2,030 children in 10 sites in 1999 – 2000
Age: Elementary school age
Other Characteristics: An after-school computer club for children

Program Components:

Component	Provided by	Duration	Description
Educational software and computer games	Adult volunteers and staff	75% of the activities provided after school; for evaluation, 30 days, 1 hour per day	Telecommunications activities for searching the internet, tools for computer-mediated and video-mediated conferencing, and MUD (multi-user dungeons on other shared virtual spaces) and MOO (an object-oriented MUD) activities
Nonelectronic activities	Adult volunteers and staff	25% percent of the activities	Included board games and arts and crafts

Program Objectives/Goals:

To provide contexts for children to master knowledge and skills and acquire practices mediating cognitive and social development (higher-order thinking skills; far transfer).
To improve computer technology knowledge and skills.
To provide a context in which undergraduates from disciplines such as developmental psychology, communications, and teacher education have opportunities to connect theory with practice and, at the same time, deliver service to children in the local community.

Study 1:

Blanton, W., Moorman, G., Hayes, B., & Warner, M. (1997). Effects of participation in the Fifth Dimension on far transfer. *Journal of Educational Computing Research, 16*(4), 371-396.

Study objectives and measurements:

Objective
To determine whether participation in Fifth Dimension yielded transfer effects on standardized measures of academic achievement.
Measurement instrument
North Carolina End-of-Grade Tests and Field Notes

Evaluation:

Type: Quasi-experimental. Pre-test/post-test matched comparison group design, but no baseline data for program and comparison groups.

Statistical techniques:
Stepwise multiple regression model. Significance level=.05; however, all findings were significant to .001.

Population evaluated: Fifty-two children from grades 3, 4, 5, and 6; 26 in the treatment group and 26 in the comparison group.

Outcome:

Children who participated in the Fifth Dimension mastered knowledge and skills and acquired practices that transferred to measures of academic achievement.

Other Information:

This site of Fifth Dimension is staffed by undergraduates in the teacher preparation program at Appalachian State University.
No baseline data provided for the comparison group.

Program: FOUNDATIONS SCHOOL-AGE ENRICHMENT PROGRAMS (FND)

Population Served:

Size: Six elementary schools in urban areas

Age: Elementary school students at all grade levels, varying in scope and purpose

Other Characteristics: Implemented in several urban areas in the mid-Atlantic and Northeast. Separate programs operate during the school year and in the summer.

Program Components:

Component	Provided by	Duration	Description
Emphasis on family involvement, with frequent communication between staff and parents and with opportunities for families to volunteer in the classroom and participate in other ways	Program coordinators, staff	After school during the academic year (September – June); daily after school until the end of business hours	All staff have previous experience working with elementary school children
Includes a curriculum that involves daily activities emphasizing academic subjects as well as experiences designed to foster physical and emotional development	Teachers, program coordinators, staff	After school during academic year	Teachers and program coordinators have bachelor's or master's degrees in education or related fields. Student-adult ratio is approximately 10:1
Field trips, homework assistance, and computer lab time	Teachers, program coordinators, staff	After school during academic year	

Program Objectives/Goals:

To provide enrichment to students in a before- and after-school care setting.

Study:

Hamilton, L.S., Le, V.-N., & Klein, S.P. (1999). *Foundations School-Age Enrichment Program: Evaluation of student achievement (PM-998-EDU).* Santa Monica, CA: RAND.

Study objectives and measurements:

Objective

To evaluate the extent to which students improve in academic skills areas of reading and math.

Measurement instrument

Terra Nova Reading/Language Arts and Mathematics Computation tests published by CTB/McGraw-Hill. All items are multiple-choice.

Evaluation:

Type: Quasi-experimental. Pre-test/post-test matched comparison group design, with baseline data provided.

Statistical techniques:

Quantitative analysis of gain scores. Test scores converted into national percentiles and national curve – equivalent scores. The scale score is derived from the raw item response using an item response theory methodology. Significance level=.05

Population evaluated: Students who were present for both evaluation sessions. The year 1 sample included 213 students, and the year 2 sample included 215. A comparison group of fourth-graders was also tested at two of the six schools.

Outcome: The scores of fourth-graders who participated in Foundations improved more than those of their nonparticipating counterparts by approximately two-fifths of a standard deviation unit.

Other Information:
Foundations youths had higher pre-test scores than comparison group youths. Benchmarking data were available for students in other grades. Students were from schools/regions with a strong focus on high-stakes testing. Baseline testing didn't begin until about 5 months after the program began, so initial program effects may not be detected.

Program: HOWARD STREET TUTORING PROGRAM (HST)

Population Served:
Size: Approximately 20 children per year
Age: 7 – 8 years old
Other Characteristics: Low-ability readers; in bottom third of first-grade class; low socioeconomic status; urban

Program Components:

Component	Provided by	Duration	Description
Contextual reading	Adult volunteers	7 months	1:1 tutor-child ratio
Word study		2 days per week	
Writing			
Reading to child			

Program Objectives/Goals:
To improve reading and reading comprehension skills.

Study:
Morris, D., Perney, J., & Shaw, B. (November 1990). Helping low readers in grades 2 and 3: An after-school volunteer tutoring program. *The Elementary School Journal, 91*(2), 132-150.

Study objectives and measurements:
Objective
Improved reading and reading comprehension skills in low-ability readers.
Measurement instrument
Pre- and post-testing of word recognition, spelling, basal passage reading (reading aloud passages from school-based reader).

Evaluation:
Type: Experimental quantitative

Statistical techniques: Random assignment to treatment and control group; significance level=.05

Population evaluated: 60 7- and 8-year-olds whose reading scores were in the bottom third of their first-grade class; 30 of these students were tutored.

Impacts:
Increased mean test scores in word recognition, reading passages, and spelling. Higher gains in improvement in word recognition, reading passages, spelling tests from pre-test to post-test.

Other Information:
Students attended sessions twice a week at a building near their school for 1 hour per day during the school year. Students received 50 hours of tutoring on average. Most tutors, especially college students, volunteered for 1 program year. Estimated costs were approximately $6,000 per year for fees of the two program supervisors (late 1980s). High program attrition rate of about 25% due to students and tutors leaving program and moving.

Program: LA'S BEST (LAB)

Population Served:

Size: 21 schools offered the program in 1995

Age: Fifth-, Sixth-, and Seventh-graders

Other Characteristics: Criteria for site selection include high academic need, based on average test scores; low socioeconomic status; at least one in each LA Unified School District region; area of high gang, drug, crime activity; ethnically diverse—26.6% African American, 4.4% Asian, 57.1% Latino, and 11.8% white; sample was 60% female.

Program Components:

Component	Provided by	Duration	Description
After-school program	Adult support staff	2 – 3 years; Monday – Friday after school until 6 p.m.	After school
Cultural enrichment (arts participation, trips)			
Academic activities			
Recreational (sports, crafts)			
Computer assistance			
Nutrition (snack, cooking, health)			

Program Objectives/Goals:

Provide safety after school.
Enhance educational opportunities.
Supplement and enrich regular education program.
Provide recreation activities.
Improve interpersonal skills and develop self-esteem.

Study 1:

Brooks, P., Mojica, C., & Land, R. (1995). *Longitudinal study of LA's BEST after school education and enrichment program, 1992 – 94.* Los Angeles: UCLA Center for the Study of Evaluation, Graduate School of Education & Information Studies.

Study objectives and measurements:

Objective

To determine the program's effect on students' effort and achievement in school subjects (performance) and on students' attitudes toward school, their self-esteem, their personal goals and aspirations, and their experiences of close relationships with peers and adults. Also, to examine whether these effects differed by ethnic group, gender, language spoken, or length of exposure to the program.

Measurement instrument

Children's questionnaires, parents' questionnaires, program pre-test and post-test scores

Evaluation:

Type: Quasi-experimental. Pre-test/post-test matched comparison group design, with baseline data provided.

Statistical techniques: ANCOVA; significance level=.05

Population evaluated: 123 program and comparison group students in 10 sites

Outcome:
Increase in school engagement, educational expectations, and academic self-concept. Increase in math and science in final year and in reading during two follow-up evaluation years. Higher growth in math, science, social science, and reading comprehension subjects in the last 2 years of the evaluation. No impact on exposure to people in gangs, drugs and alcohol, or to people in college. No impact on relations with adults. Increase in reported positive relationships with adults after school. Increase in reports of feeling safe after school. Increase in reports that adults were helpful after school and that they would seek out nonparental adults (including aides and teachers) for help with a problem.

Other Information:
Program group children were more likely to be Latino or Asian and were more likely to speak a language other than English at home. Program participants had been in the program for at least 2 years, whereas the comparison group had been in the program for 3 months or less. Program participants had lower achievement before the program (as measured by core GPA than comparison group.

Program: QUANTUM OPPORTUNITIES PROGRAM (QOP)

Population Served:
Size: 125 students in five sites
Age: Ninth grade
Other Characteristics: Students entering ninth grade; all were highly disadvantaged.

Program Components

Component	Provided by	Duration	Description
Education-related activities (tutoring, computer-assisted instruction, homework assistance)	Adult counselors committed to 4 years	250 hours per year after school	Different settings: community agencies, public schools, homes, group activities
Development activities (acquiring life and family skills, planning for college and jobs)	Adult counselors committed to 4 years	250 hours per year after school	Different settings: community agencies, public schools, homes, group activities
Service activities (community service projects, helping with public events, holding regular jobs)	Adult counselors committed to 4 years	250 hours per year; after school	Different settings: community agencies, public schools, homes, group activities
Hourly stipends and bonuses for completing each segment of the program			

Program Objectives/Goals:
To foster academic and social competencies.

Study:
Hahn, A. (1994). Extending the time of learning. In D.J. Besharov (Ed.), *America's disconnected youth: Toward a preventative strategy.* Washington, DC: CWLA Press and American Enterprise Institute for Public Policy Research, pp. 233 – 266.

Study objectives and measurements:
Objective
To test the ability of community-based organizations to foster the achievement of academic and social competencies among high school students from families receiving public assistance.
Measurement instrument
Questionnaire, academic skill level test (Test of Adult Basic Education – Form 5 Level), functional skill level test (APL 40 Item Version Survey – CCP Tier Mastery Test). Questionnaire given in fall 1989, 1990, 1991, and 1992. Follow-up questionnaire given in fall 1993. Academic and functional skill testing given in fall 1989 and spring 1993.

Evaluation:
Type: Experimental

Statistical techniques: Random assignment to experimental and control groups. Data analyzed using a chi-square test. Significance level=.10

Population evaluated: All students were selected at random from a pool of graduating eighth-grade students whose families were receiving some form of public assistance. They were from five communities in San Antonio, Philadelphia, Milwaukee, Saginaw, MI, and Oklahoma City. There were 100 students in the experimental group and 100 in the control group at pre-test, 88 in the experimental group and 82 in the control group at follow-up. Random assignment at four sites before recruitment; 5-year longitudinal study from grade 9 to 1 year after high school.

Impacts:

Effects apparent after 2 years.

Education—By the end of grade 12(program began when students were in 9th grade), QOP participants had higher academic skills and educational expectations than students in the control group, and the proportion of participants receiving honors or awards was nearly three times the proportion of controls.

Dropout—At the end of the program, participants were less likely to have dropped out of high school, more likely than controls to have graduated (63% vs. 42%), and more likely than controls to be attending 2- or 4-year college (37% vs. 14%).

Health—Less likely than controls to have children in the post-program period (38% vs. 20%); no site-specific differences in likelihood to have children, but greater knowledge of contraceptives.

Other—Increased involvement in community service; improved attitudes toward future; lower rates of social exclusion (less likely to be unemployed, lacking high school diploma, and not in school).

Other Information:

The program design, not the evaluation procedure, set the sample size. The small sample size can be attributed to the financial incentive aspect of the program, requiring a limited number of participants.

PROGRAM: SPONSOR-A-SCHOLAR (SAS)

Population Served:
Size: Approximately 150 students (30 per class) from Philadelphia public high schools
Age: Ninth grade (stay in program until first year of college)
Other characteristics: 75% black, 10% Hispanic, 7% white, and 7% Asian. Student's parents must support program goals; program open to motivated, low-income students with average grades.

Program Components:

Component	Provided by	Duration	Description
Mentoring	Volunteers	4 years; mentors asked to see students once a month with phone contact in between	1:1 ratio of mentors to students
Academic assistance	Academic coordinator	4 years; coordinator works part-time	Academic assistance; help with college applications and financial aid
Interface with schools and others	Program		
Money	Volunteers, businesses	One time	$6,000 for college

Program Objectives/Goals:
Information, technical, education skills: Help students from Philadelphia public high schools stay in high school and enroll in college.
Material resources: Some financial assistance for those who make it to college.

Study:
Johnson, A. (1999). *Sponsor-A-Scholar: Long-term impacts of a youth mentoring program on student performance.* Princeton: Mathematica Policy Research, Inc.

Study objectives and measurements:
Objective:
To assess whether the program influences the academic performance and educational attainment of the students and whether mentoring or participant characteristics are related to outcomes.

Measurement instrument:
GPA in tenth, eleventh, and twelfth grades; participation in college prep activities; self-esteem; college attendance in first and second years after high school graduation; college retention rate between first and second years of college. Students were surveyed during each of the 4 years of the evaluation via a self-administered questionnaire, and via a telephone survey after they left school. Each mentor was surveyed once, during the student's senior year in high school. Information was also collected from student transcripts, school districts, class coordinator's notebooks, and observations.

Evaluation:
Type: Quasi-experimental (matched-group)
Statistical techniques: Analyses control for background characteristics. Regression analysis and logistic regression analysis (where a dichotomous dependent variable is used); significance level=.10
Population evaluated: 434 high-risk high school students, 180 of whom participated in the program.

Outcomes:
Participants had higher GPAs than comparison group in tenth and eleventh grade. Participants did not have significantly different GPAs in twelfth grade. Participants did not have different high school graduation rates than comparison group students, although both had very high rates (in excess of 90%). Participants were more likely than controls to attend college and were engaged in more college preparatory activities. Participants and controls did not differ significantly in self-confidence or self-esteem.

Other information:
Response rates: Year 1, 98%; year 2, 99%; year 3, 92%; year 4, 95%.

Program: SUMMER TRAINING AND EDUCATION PROGRAM (STEP)

Population Served:
Size: 3,000 students over 2 years
Age: 14- and 15-year-olds
Other Characteristics: All students were economically and educationally disadvantaged and at risk of dropping out of school.

Program Components

Component	Provided by	Duration	Description
Summer work and class experience	Local employment and training agencies and local school districts	15 months (2 summers and 1 intervention year). During the 2 summers, 90 hours per week; during the school year, 18 hours, 2 mornings per week.	
Financial incentive			Paid minimum wage for participation, in class and on the job.

Program Objectives/Goals:
To reduce the occurrence of adolescent parenthood, decrease the proportion of youths who drop out of high school, and increase high school graduation rates.

Study:
Grossman, J., & Sipe, C. (Winter 1992). *Summer Training and Education Program (STEP) report on long-term impacts.* Philadelphia: Public/Private Ventures.

Walker, G., & Vilella-Velez, F. (1992). *Anatomy of a demonstration: The Summer Training and Education Program (STEP) from pilot through replication and postprogram impacts.* Philadelphia: Public/Private Ventures.

Study objectives and measurements:
Objective
To assess both the impacts of the program on measures of education, reproduction behavior, early employment, and welfare and the feasibility of implementing the model in various settings on a large scale.
Measurement instrument
In-program data (summer tests, questionnaires, and program records) and post-program data (follow-up interviews and high school transcripts) were collected.

Evaluation:
Type: Experimental.

Statistical techniques: Random assignment to a treatment group (offered the opportunity to participate in STEP) and a control group (offered a one-summer job in the federally funded Summer Youth Employment and Training Program (SYETP); longitudinal, multivariate regression analysis. Significance level=.10

Population evaluated: 3,226 economically disadvantaged students (as defined by JTPA standards), almost half of whom lived in female-headed households.

Impacts:

Early impacts

After the first summer:

Increased reading and math test scores for first and second cohorts, but not for third

Long-term impacts

Once the program ended, program impacts decayed rapidly

No Impact: Drop-out rate
College attendance
Sexual behavior
Teen pregnancy rate
Employment rate

Increased: Knowledge of, and scores on tests about responsible social and sexual behavior

Other Information: Evaluators did not consider impacts to be significant unless they were consistent across at least two cohorts. Some impacts were found for subgroups.

Program: TEXAS PARK AND RECREATION DEPARTMENT SPONSORED AFTER-SCHOOL PROGRAM (TXPR)

Population Served:
Size: Not provided
Age: Elementary school age
Other Characteristics: Program offered in Texas communities. When compared to Austin as a whole, these communities showed: lower levels of per capita income, higher rates of unemployment, higher percentages of children under the age of 18 with incomes below the poverty level, lower rates of high school graduation, and higher rates of Spanish being spoken in the home.

Program Components

Component	Provided by	Duration	Description
Explorers	Teachers	1 – 4 times per week; 45 – 120 minutes per day	Academic-oriented activity focused on natural science. The goal was to expose participants to a large number of species that were not indigenous to the inner-city and to help them appreciate those that were.
Let's Grow	Teachers	1 – 4 times per week; 45 – 120 minutes per day	An activity with both recreational and academic objectives. Students learn about water, energy, and agriculture through hands-on gardening and some cooking activities. Activities were designed to increase knowledge about measurement/math, cause-effect relationships, the environment, and social studies.
Traditional recreation and sports program	Teachers	1 – 4 times per week; 45 – 120 minutes per day	Team sports, activities went beyond purely recreational to include academics.
Cultural activities	Teachers	1 – 4 times per week; 45 – 120 minutes per day	Designed to celebrate the Hispanic culture integral to the community.
Clowning	Teachers	1 – 4 times per week; 45 – 120 minutes per day	Purely recreational, designed to encourage activity and to educate children about clowning and circus arts.

Program Objectives/Goals:
To provide safe, positive environments for children.

Study 1:
Witt, P. (1997). *Evaluation of the impact of three after-school recreation programs.* College Station, TX: Texas A&M University, Department of Recreation, Park and Tourism Sciences.

Study objectives and measurements:
Objective
- To determine if there was a need for after-school programs.
- To determine if any advantages accrued to children participating in TXPR-sponsored after-school programs in terms of school performance and scores on several scales measuring aspects of self-esteem and factors related to building protection against undertaking risky behaviors.
- To determine what program characteristics are most helpful in achieving the desired outcomes.
- To recommend adjustments that might make programs more effective.

Measurement instrument
Data from school records and after-school program. Scales from Harter's Self-Perception Profile for Children, Harter's Social Support instrument, and Witt, Baker and Scott's Protective Factors Scales. Interviews conducted with a sample of parents and program participants.

Evaluation:
Type: Quasi-experimental

Statistical techniques:
3X2, group-by-time repeated-measures analyses, cross tabs, ANOVA and MANCOVA analysis; significance level=.05

Population evaluated: Three schools selected from the 24 sites

Outcomes:
Positive results for school absences. For a number of self-perception and protective factor scales, children in the "after-school program (PARD)" group were equal to or slightly trailed children in the "high level of adult supervision after school but not at school" (HAS) group at the beginning of the year but greatly exceeded that group's scores by the end of the year. The scores of children in the "low level of adult supervision after school" (LAS) group decreased over the year.

On the Protective Factors Neighborhood Resources scale, participants' scores were higher than those of the other two groups initially and did not change much over the year. Scores of children in the HAS and LAS groups declined.

Initially, all three groups had about the same absence rate. Over time, the rate of the LAS group increased, while the rates of the other two groups remained constant.

In science and health grades, program participants improved their scores more than the other two groups.

Other Information: None.

Study 2:
Baker, D, & Witt, P. (1996). Evaluation of the impact of two after-school recreation programs. *Journal of Park and Recreation Administration,14*(3), 23-44.

Study objectives and measurements:
Objective
To find out whether there is a relationship between level of participation in the after-school program and number of absences from school, tardiness, grades, self-esteem, and behavior at home and at school.

Measurement instrument
Records maintained by the school and Austin Independent School District, Behavior Rating Profiles-Second Edition (BRP-2), Culture-Free Self-Esteem Inventory-2.

Evaluation:
Type: Quasi-experimental; pre-test/post-test scores.

Statistical techniques:
MANCOVA and ANCOVA analyses; significance level=.05

Population evaluated: 237 program participants and 65 nonparticipants.

Outcome:
Program participants had higher post-test scores in math, science, language, and reading. There was no relationship between program participation and scores on the behavior rating profile. Program participants scored significantly higher on the self-esteem inventory than nonparticipants.

Other Information: None

Program: UNIVERSITY STUDENT ATHLETES TUTORING PROGRAM (USA)

Population Served:
Size: 15 tutors, 30 first-grade children
Age: Tutors – university students; children – first grade
Other Characteristics: Most tutors were student athletes; children were academically disadvantaged

Program Components

Component	Provided by	Duration	Description
One-on-one tutoring sessions with a college athlete	College athletes with low reading skills in comparison to other college students	45 minutes, twice a week	In classroom, during school hours. Covered three or four of the following activities: reading children's literature, writing, My Book, My Journal, alphabet book, hearing word sounds, letter-sound activities
Tutors—self-selected reading, journal writing	Self	4 hours per week	Logged time and wrote responses in journal
Tutors—classroom discussion of tutoring activities and how literacy develops	University professor	2 ½ hours per week	
Tutors—write children's book		2 books per semester	

Program Objectives/Goals:
To improve reading skills of university college athletes and first-grade students who have poor reading skills.

Study:
Juel, C. (1996). What makes literacy tutoring effective? *Reading Research Quarterly, 31*(3), 268 – 289.

Study objectives and measurements:
Objective
To determine whether (1) relatively untrained college students, who are poor readers themselves, can successfully help struggling first- and second-grade readers and whether (2) the college students could become stronger readers and writers in the process. Also, to determine what factors contribute to successful outcomes of one-on-one tutoring.
Measurement instrument
Multiple measures of reading, writing, and attitude toward school administered at the beginning and the end of the school year to both children and tutors. Tutors—Nelson-Denny Reading Test and LASSI test. Children—Metropolitan Readiness Test (MRT), Lay's letter identification test, Stones, Wide Range Achievement Test (WRAT), Diagnostic Test of Basic Coding Skills, attitude survey, Diagnostic Reading Scales, Iowa reading and listening comprehension subtests.

Most successful tutor-student relationships were analyzed to determine the particular forms of interaction and the specific tutoring activities that seemed to help children the most.

Evaluation:
Type: Pre-test/post-test design. Matched comparison groups for at-risk students.

Statistical techniques: Quantitative analysis of growth in scores. Qualitative analysis of videotaped sessions; quantitative analysis of minutes spent in various tutoring activities.

Population evaluated: Children—30 first-graders selected on the basis of need and availability of tutors (treatment group); 15 first-graders at lower risk were mentored but not tutored (control group). Tutors—15 university students who scored the lowest on the Nelson-Denny Reading Test (target group) and 15 next-lowest scorers (control group).

Outcome:

Children—High reading comprehension scores as children entered the next grade, but wide variation in performance. There was a large standard deviation, and mean scores were not improved to a normative level.

Tutors – Higher growth and mean scores on reading comprehension and vocabulary tests; better self-reported class attendance.

Both tutors and children improved their scores more made significantly greater improvements in comparison to their respective control groups.

Other Information:

Both tutors and children scored lower on the pre-test measures than their respective control group students.

Program: UPWARD BOUND (UB)

Population Served:

Size: Approx. 44,000 students in 563 regular UB projects (not math/science centers or Veterans projects) nationwide

Age: High school

Other Characteristics: Two-thirds of the students in each project must be low-income and first-generation college prospects; the remainder must have one of the characteristics, but not both.

Program Components

Component	Provided by	Duration	Description
Traditional academic instruction, tutoring, mentoring, counseling, career planning, cultural programs, college planning activities	Program staff	Up to 4 years. Meets regularly during the summer and school year. Average student attends over 100 sessions of academic courses and 70 sessions of nonacademic activities	Resources are provided in addition to a rich and challenging academic program.
Meetings in the academic year	Program staff		
Intensive instructional program in the summer	Program staff		During summers, there is a residential program where students live on a college campus to simulate the college experience.

Program Objectives/Goals:

To help prepare disadvantaged high school students for college and to increase college enrollment and success.

Study:

Myers, D., & Schrim, A. (April 1999). *The impacts of Upward Bound: Final report for phase I of the national evaluation.* Washington D.C.: Mathematica Policy Research, Inc.

Study objectives and measurements:

Objective

To answer the following questions:

1. To what extent does UB further the academic and personal development of students during high school?
2. Does UB have an impact on college access and retention?
3. Do some groups of students benefit more from UB than others?
   What are the typical experiences of participants, for example, in terms of how long they participate? Does the amount of time participants spend in the program have an influence on various outcomes?

Measurement instrument

Baseline questionnaire at the time of application, first and second follow-up surveys (1994 and 1996), student transcripts (1994 and 1996), and project staff annual reports on the participation of students in the program.

Evaluation:
Type: Experimental

Statistical techniques: random assignment, one-tailed t-test, two-tailed t-test. Significance level=.10

Population evaluated: Nationally representative sample of 67 UB projects hosted by 2-and 4-year colleges with 1,500 students in the treatment group and 1,300 in the control group.

Outcome:
High school graduation status: No impact

Educational expectations: Being selected for UB led to higher expectations

Credits earned in high school: Small impact on number of math credits earned

Extracurricular activities or parent involvement: No impact

College enrollment: No impact*

Post-secondary credits earned: More than control group

Receipt of financial aid: More likely than for control

Engaged in college activities: More actively than controls

Large impacts on students with lower initial educational expectations

Substantial impact on boys

Hispanic and white youths benefited more than African American youths

Giving students the opportunity to participate had substantial impacts on low-income, first-generation college students

Large impacts on students with lower academic performance as high school freshmen

Similar impact for ninth- and tenth-grade applicants

Students at greater risk of academic failure as freshmen benefited more than those at less risk

Longer exposure to UB led to higher post-secondary attendance rates, attendance at more selective schools, and earning more post-secondary credits

Other Information:
More definitive results concerning college access and retention will not be available until second follow-up study is completed.
*Data reflect only the experience of students who entered UB later in high school; therefore, results show only the impact of short-term involvement in UB.

Appendix B: Non-Academic Programs Offered by Each Program

Program	Other Components
Boys and Girls Clubs of America's Educational Enhancement Program (BGC)	Recreational activities Trips Human services
Children at Risk (CAR)	Community-enhanced policing/enhanced enforcement Case management Criminal/juvenile justice intervention Family services After-school and summer activities Mentoring Monetary and nonmonetary incentives
Fifth Dimension (5D)	Recreational computer games
Howard Street Tutoring (HST)	N/A
LA's BEST (LAB)	Cultural enrichment (arts, trips) Recreational Nutrition
Texas Parks and Recreation After-school Programs (TXPR)	Traditional recreation and sports program Cultural activities Purely recreational activities
Quantum Opportunities Program (QOP)	Life and family planning skills (work preparation, etc.) Community service Financial incentives (stipends, bonuses for participation)
Summer Training and Employment Program (STEP)	Summer work Financial incentive for participation
USA (no formal name, university student tutors)	N/A
Upward Bound (UB)	Mentoring Counseling Career planning
Foundations (FND)	Physical activities Field trips Computer lab activities
Sponsor-A-Scholar (SAS)	Mentoring Scholarship for college expenses

Program References

Boys and Girls Clubs of America

BGC Schinke, S.P., Cole, K., & Poulin, S.R. (2000). Enhancing the educational achievement of at-risk youth. *Prevention Science, 1*(1), 51 – 60.

Children at Risk

CAR Harrell, A., Cavanaugh, S., & Sridharan, S. (1999). *Evaluation of the Children at Risk Program: Results 1 year after the end of the program. Research in Brief.* Washington, DC: U.S. Department of Justice, Office of Justice Programs, National Institute of Justice.

Fifth Dimension

5D Blanton, W., Moorman, G., Hayes, B., & Warner, M. (1997). Effects of participation in the Fifth Dimension on far transfer. *Journal of Educational Computing Research, 16*(4), 371 – 396.

Foundations

FND Hamilton, L.S., Le, V. N., & Klein, S.P. (1999). *Foundations School-Age Enrichment Program: Evaluation of student achievement.* Santa Monica, CA: RAND.

Howard Street Tutoring Program

HST Morris, D., Perney, J., & Shaw, B. (November 1990). Helping low readers in grades 2 and 3: An after-school volunteer tutoring program. *The Elementary School Journal, 91*(2), 132 – 150.

LA's BEST

LAB Brooks, P.E., Mojica, C.M., & Land, R.E. (1995). *Longitudinal study of LA's BEST After School Education and Enrichment Program, 1992-94.* Los Angeles: UCLA Center for the Study of Evaluation, Graduate School of Education & Information Studies.

Quantum Opportunities Program

QOP Hahn, A. (1994). Extending the Time of Learning. In D.J. Besharov (Ed.), *America's disconnected youth: Toward a preventative strategy.* Washington, DC: CWLA Press and American Enterprise Institute for Public Policy Research, pp. 233 – 266.

Sponsor-A-Scholar

SAS Johnson, A. (1999). *Sponsor-A-Scholar: Long-term impacts of a youth mentoring program on student performance.* Princeton: Mathematica Policy Research, Inc.

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